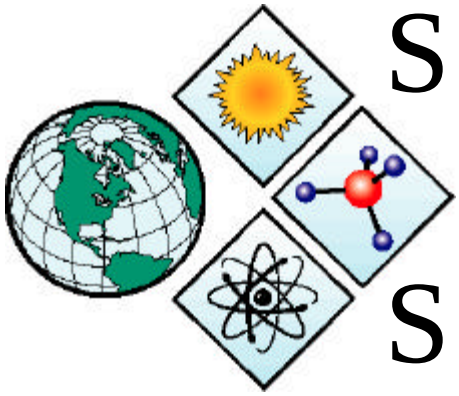
DOE/CR-0068-8

U.S. Department of Energy
FY 2001 Budget Request to Congress

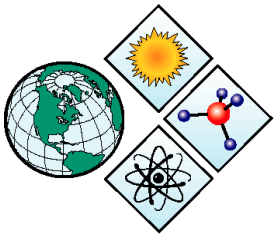
Budget Highlights



Strength Through Science

Office of Chief
Financial Officer

February 2000



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FY 2001 Budget Highlights

Introduction

Strength Through Science

The Department of Energy (DOE) has unique scientific and technical capabilities that serve our nation by providing innovative solutions to some of the most important scientific, national security, energy, and environmental challenges facing America's future.

At $18.9 billion, the Department's FY 2001 budget request makes an ambitious statement about the Administration's commitment to strengthen and improve America's future through science. This budget builds on previous investments to: promote scientific progress; advance peace; ensure the availability of secure, clean, and efficient energy resources for the nation's economic future; clean up the legacy of the Cold War; and strengthen safety and health programs across the DOE complex.

The FY 2001 request is almost $1.6 billion more than the FY 2000 appropriated level. This represents a nine percent increase and includes:

- ***$3.2 billion (an increase of nearly $340 million, or 12 percent) to strengthen DOE's science programs*** and provide the knowledge base for future innovation, thereby improving America's long-term position in an increasingly competitive world economy. DOE continues to promote a strong national scientific infrastructure and provide the technical foundations for DOE's applied missions. The FY 2001 budget includes initiatives to advance ongoing work at the frontiers of: nanoscience, scientific computing, microbial genomics, robotics, bioengineering, and scientific facilities utilization.

- ***$6.6 billion (an increase of more than $500 million, or 8 percent) to promote peace and address the next generation of national security threats.*** Within the newly established National Nuclear Security Administration (NNSA), DOE's national security programs increase to ensure the safety, security, and reliability of America's nuclear weapons stockpile; reduce nuclear proliferation threats world-wide; and protect against the threat of weapons of mass destruction. Included is $100 million to advance non-proliferation activities in Russia.

- ***$2.2 billion (an increase of $175 million, or 8 percent) to provide energy options for a stronger America.*** These investments will enhance U.S. energy security by providing more economical and environmentally desirable ways to use and produce energy. DOE continues to support a balanced portfolio of energy for America's future, and research and development (R&D) to enable a cleaner energy future. This request emphasizes: energy infrastructure reliability; scientific carbon management and R&D; international energy R&D partnerships; ultra-clean transportation fuels; and bio-energy/bio-power technologies.

- ***$6.8 billion (an increase of $510 million, or 8 percent) to improve the quality of life for millions of Americans*** by meeting cleanup obligations to communities throughout the country and moving forward with a permanent geologic repository for nuclear waste. The budget also will help create new jobs and business opportunities and support health studies of DOE workers and nearby communities. This budget reflects a cooperative working relationship on cleanup formalized by Secretary Richardson and the Governors of Colorado, South Carolina, Tennessee, and Washington in September, 1999. The request features new initiatives to accelerate cleanup and protect health and safety at Gaseous Diffusion Plants in Portsmouth, Ohio, and Paducah, Kentucky; and initiates cleanup of uranium mill tailings in Moab, Utah to restore lands at the gateways of our national parks.

U.S. Department of Energy
Major National Laboratories and Research Facilities

Ames Laboratory	Iowa
Argonne National Laboratory	Illinois & Idaho
Bates Linear Acceleratory Laboratory	Massachusetts
Bettis Atomic Power Laboratory	Pennsylvania
Brookhaven National Laboratory	New York
Fermi National Acceleratory Laboratory	Ilinois
Idaho National Engineering & Environment Laboratory	Idaho
Knolls Atomic Power Laboratory	New York
Lawrence Berkeley National Laboratory	California
Lawrence Livermore National Laboratory	California
Los Alamos National Laboratory	New Mexico
National Environmental Technology Laboratory	Pennsylvania & West Virginia
National Renewable Energy Laboratory	Colorado
Oak Ridge National Laboratory	Tennessee
Pacific Northwest National Laboratory	Washington
Princeton Plasma Physics Laboratory	New Jersey
Sandia National Laboratories	New Mexico
Stanford Linear Accelerator	California
Thomas Jefferson National Accelerator Facility	Virginia

DOE Is A Science Agency

The Department of Energy is a science agency; in fact, 40 percent of DOE's FY 2001 budget qualifies as R&D in the federal budget. DOE will spend a total of $7 billion in R&D in FY 2000 and plans to spend $7.65 billion in FY 2001, for an increase of $0.55 billion, or 7.7 percent.

DOE is among the top federal R&D funding agencies regardless of the criterion used. DOE is first in scientific facilities and ranks third in basic research, after NIH and NSF.

The importance of DOE is particularly clear to certain fields of science and technology. In the physical sciences, DOE is the largest, providing nearly 50 percent of the federal support, and twice as large as NASA, and four times larger than NSF. In mathematics and computer sciences, DOE is second only to DOD. In engineering, DOE is third largest, after NASA and DOD.

The Department's science and technology activities are wide-ranging: from supercomputers for our stockpile stewardship program, to the human genome program; and from the national spallation neutron source, to our work in semiconductor chips, the scope of the work DOE supports is enormous.

Despite this significant research effort and important responsibility, DOE's involvement in breakthrough science and technology is

not well-known to most Americans. In fact, the results of DOE's research can be found in almost every aspect of daily life:

- DOE-derived technologies such as catalytic converters and proton exchange membrane fuel cells improve the efficiency and environmental cleanliness of cars and trucks;
- DOE research in solid state, atomic, and nuclear physics has led to the development of modern medical imaging devices by private industry, such as CAT scans that enhance medical diagnostics in hospitals across the country;
- Field portable chromatography devices developed by DOE national laboratories have given law enforcement agencies new forensic methods of analysis to solve crimes;
- Refrigerators and freezers with high efficiency compressors developed with DOE support have saved consumers millions of dollars in energy costs every year; and
- Through active partnership programs with the private sector, numerous innovations have been transferred from DOE laboratories to the public, including items such as compact disc players, microwave ovens, razors, liquid crystal displays, flourescent lighting, and recyclable plastics.

These contributions are accomplished by the Department through its extensive innovation system of national laboratories, and partnerships with industries, academia, and other R&D performers. DOE's complex of scientific facilities includes: powerful accelerators for research in high-energy and nuclear physics; light and neutron beam facilities for cutting-edge research in material and life sciences; high-powered laser facilities; electron beam micro-characterization centers; high resolution microscopes; and massively-parallel supercomputing centers.

DOE is an important part of the nation's scientific and innovation system. For example, DOE is important to universities not only because of the nearly $600 million a year of direct academic support, but also because of the money spent at DOE Labs located at universities enriching the academic work done on those campuses. Work such as the Princeton Plasma Physics Lab, the Ames Lab at Iowa State University, the Lawrence Berkeley Lab, the Oak Ridge National Lab, the Brookhaven National Lab, the Pacific Northwest National Lab, and the Stanford Linear Accelerator, among others.

Universities also benefit from DOE's support of major scientific user facilities around the country -- facilities such as the Advanced Photon Source at Argonne, the Relativistic Heavy Ion Collider at Brookhaven, and the Continuous Electron Beam Accelerator at the Thomas Jefferson Laboratory in Virginia. These are among the more than 60 facilities in the DOE complex that are used by 18,000 researchers at nearly 200 universities and about as many companies and laboratories.

The excellence of the science and technology programs we support can be seen in the recognition our labs and scientists receive. For example, DOE affiliated scientists have won more than 70 Nobel prizes. Also, the Department is the largest winner of *R&D 100 Awards*. In 1999 our labs won a record 43 awards, more than twice as many as all of the other federal agencies combined. DOE's Labs are also prominent winners or finalists in the yearly competition run by *Discover* Magazine.

Not only is the scientific work of the Department important in and of itself, but for progress to be made in many other fields of science -- such as health research -- some of DOE's facilities and research are vital, for example, our synchrotron light sources, or our planned spallation neutron source, or our advanced computational capabilities. In the past year, NIH has agreed to help fund the upgrading of our SPEAR synchrotron at SLAC, and our NSLS at Brookhaven.

The FY 2001 investment will sustain the Department's responsibility to operate and manage an important part of the nation's scientific and technological infrastructure. It will support new discoveries and the expansion of technological innovation that will help ensure national and economic security and environmental quality into the 21st century.

Each of DOE's mission areas relies on these cutting-edge tools and scientific resources to achieve its objectives. This is as true for DOE's national security mission, which ensures that the nation's nuclear weapons stockpile remains safe, secure, and reliable, or to counter the spread of weapons of mass destruction (WMD); as it is for its energy mission, to achieve continued reductions in the economic and environmental costs of producing and using energy resources; and for its environmental missions, to clean up the nuclear and toxic waste that is the legacy of the Cold War.

As we enter the 21st century, our nation faces challenges that will require new knowledge about the world in which we live, a greater understanding of the forces that rule the physical world, and innovations to solve the complex problems of tomorrow. We need new tools to ensure the accountability, control, and disposition of WMD, their components, and nuclear materials.

Similarly, with the world's population growing, and the level of global economic activity expanding, we need new sources of energy to power U.S. economic growth into the next century. And because energy use is the largest contributor to environmental impacts and waste production, we must also develop technologies and new processes to minimize, and even reverse, the harm that energy production and use exacts on the environment.

The FY 2001 budget promotes investments in science and technology in all of these areas, as well as initiatives in key areas so that the Department can continue to develop the tools needed to solve these challenges.

The DOE Budget

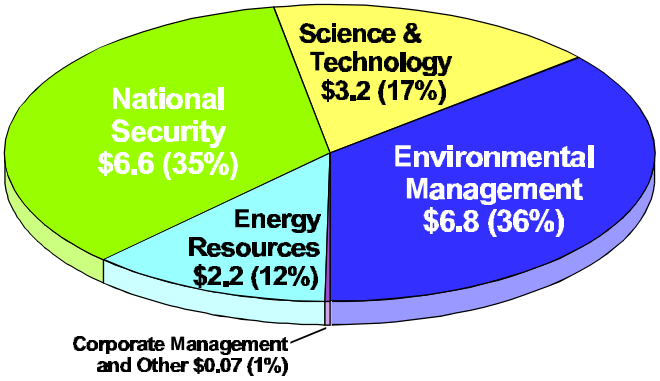
The Department of Energy's FY 2001 Budget

The Department's FY 2001 budget submission and this *Budget Highlights* are organized according to the budget structure in the two appropriations bills which fund DOE's programs -- Energy and Water Development, and Interior and Related Agencies.

The Department's programs, however, are managed along four primary business lines: science, national security, energy resources, and environmental quality. These tie to the Department's Strategic Plan to deliver DOE's core mission:

> *"To foster a secure and reliable energy system that is environmentally and economically sustainable, to be a responsible steward of the nation's nuclear weapons, to clean up our own facilities, and to support continued United States leadership in science and technology."*

Department of Energy by Business Line



FY 2001 Request to Congress: $18.9 Billion

The DOE Strategic Plan provides the framework for the FY 2001 budget request and the associated performance plan, establishing performance goals for each business line. In the update to the Strategic Plan, the Department continues its presentation of programs along four business lines, with the addition of a corporate management function. The goals from the new Strategic Plan will:

- Produce remarkable insights into the physical and biological worlds and the nature of matter and energy, advancing the basic research and instruments of science that are the foundations for DOE's applied missions and a base for U.S. technology innovation.
- Enhance national security through the military application of nuclear technology and reduce the global danger from WMD.
- Promote the development and deployment of energy systems and practices that will provide current and future generations with energy that is clean, reasonably-priced, and reliable.
- Aggressively clean up the environmental legacy of nuclear weapons and civilian nuclear research and development programs at the Department's remaining sites, safely manage nuclear materials and spent nuclear fuel, and permanently dispose of the nation's radioactive wastes.

Science

Science for America's Future

The Department's FY 2001 budget request in Science programs addresses significant challenges facing the nation. The National Academy of Sciences has affirmed that much of our nation's economic growth, quality of life, and security derive from long-term investments and leadership in science and technology.

The future of our nation's prosperous technology-based economy is closely linked to our willingness to continue investing in cutting-edge scientific research. The result of past investments in science and technology are indisputable. Science and technology in the 20th century has resulted in dramatic changes in commerce and communication technologies, and in the diagnosis and treatment of disease. We are learning to control matter at the atomic level, develop cleaner energy sources, and look deeply into the cosmos to the origins of matter and energy. Business can now be conducted worldwide with a few strokes of a keyboard because of communications protocols, research in which DOE has played a key role.

Affordable, abundant energy has been the cornerstone of our strong economy and population growth and industrialization will greatly increase the world's use of energy. Yet, fossil fuel energy sources are inevitably limited and they often have significant environmental consequences. Basic research is essential to create energy technologies that can provide new fuels, seek out new supplies of traditional fuels, convert known fuels to more effective

forms, generate, store, and transmit electricity with less waste, and find more efficient ways to use energy.

Fundamental science is also needed to track pollutants through their intricate interactions with the environment and uncover new ways to dispose of toxins and climate-changing greenhouse gases. Advances in scientific computation can be used to convert new knowledge and vast amounts of data into better models of global climate to predict the consequences of energy use and to test mitigation strategies.

Unraveling the human genome and understanding the cellular environment can provide the knowledge necessary to improve the diagnosis and treatment of disease and to further protect human health. If the nation's future is to be more secure, new approaches are required to detect and analyze chemical, biological, and nuclear threats rapidly. Understanding these complex challenges will require cross-disciplinary approaches.

The Department of Energy's science programs and infrastructure support the basic research and provide the technical foundations to achieve DOE's mission goals. Much of the underlying research required can only be accomplished using specialized research facilities. DOE supports these efforts by designing, building, and operating many of the world's preeminent scientific research facilities.

The Department of Energy's Office of Science is the principal DOE program focused on basic scientific research, and together with the Technical Information Management Program, comprises the Science business line. The total FY 2001 request for programs in the Science business line is $3.2 billion. This is $337 million above the FY 2000 comparable level, an increase of 12 percent. Of this, $3.15 billion is for the Office of Science Programs.

The $3.15 billion level will provide continued strong support for DOE's core national scientific infrastructure, state-of-the-art facilities, and fundamental research programs. Within this, there is $714.7 million for High Energy Physics, $369.9 million for Nuclear Physics, $445.3 million for Biological and Environmental Research, $1.015 billion for Basic Energy Sciences, and $182 million for Advanced Scientific Computing Research.

Within Basic Energy Sciences, we are requesting a significant increase in funding (for a total request of $281 million) for the Spallation Neutron Source (SNS). Neutron sources are the only way to study the structure of certain materials; they are used by university and industrial researchers to make discoveries in fundamental materials science, as well as to design improved pharmaceuticals, engines, plastics, and other products. When it is completed in 2006, the SNS will be ten times more powerful than any neutron source now in existence, reestablishing U.S. leadership in this important field.

In Magnetic Fusion, at $247 million, we are continuing a substantially increased research effort begun in FY 2000 that has already produced impressive results. The National Spherical Torus Experiment at the Princeton Plasma Physics Lab was completed ahead of schedule and within budget, and produced a plasma current of one million amps, nine months ahead of its schedule.

FY 2001 Science Initiatives

For FY 2001, several initiatives are proposed to advance DOE activities in pioneering fields of science. Accelerating work in these areas makes sense as a smart investment for the nation and our future.

U.S. Department of Energy
FY 2001 DOE-Wide Funding for Science Initiatives
($ in thousands)

Initiative	FY 2000	FY 2001
Nanotechnology and Nanoscience	54,860	90,795
Information Technology	$517,000	$667,000
Life Sciences		
Microbial Cell	$0	$12,175
Bioengineering	$1,700	$6,700
Total, Life Sciences	$1,700	$18,875
Robotics and Intelligent Machines	$13,978	$19,797

National Nanotechnology and Nanoscience Initiative

The Administration is making the National Nanotechnology Initiative (NNI) a top science and technology priority. The emerging fields of nanoscience and nanoengineering – the ability to characterize, manipulate, and move matter atom by atom – are leading to unprecedented understanding and control over the fundamental building blocks of all physical things. The potential benefits of studying materials and processes at this scale could lead to devices and capabilities that are straight out of science fiction – supercomputers that fit in the palm of a hand, tiny machines that fight disease and repair damage from inside the human body, or microscopic devices that can scour pollutants from the air. These developments are likely to change the way almost everything – from vaccines to computers to automobile tires to objects not yet imagined – is designed and made. DOE is one of six federal agencies contributing to this nearly $500 million initiative.

DOE's FY 2001 budget request includes $90.8 million in the Office of Science to fund basic science, engineering, modeling, diagnostics, and fabrication of sophisticated miniaturized technologies. This investment will leverage ongoing activities at DOE national laboratories in a broad range of activities including research in nanoscale synthesis and assembly methods to: significantly improve solar energy conversion and energy-efficient lighting; develop stronger, lighter materials that will improve efficiency in transportation; greatly enhance chemical and biological sensing; and develop better sensors and controls to increase efficiency in manufacturing.

Information Technology Initiative: "Information innovation lies at the root of productivity and economic growth," with these words from Alan Greenspan, President Clinton announced the Administration's unprecedented investment in Information Technology (IT) R&D in the FY 2001 federal budget. DOE is one of seven federal agencies taking part in a $2.2 billion proposed IT R&D investment. A total of $667 million is identified as part of the government-wide IT R&D initiative. Two DOE programs, Advanced Scientific Computing Research program in the Office of Science and the Accelerated Strategic Computing Initiative (ASCI) in the Office of Defense Programs are increased by $150 million above the FY 2000 level. The ASCI program is discussed in the section on Defense Programs.

The **Advanced Scientific Computing Research (ASCR)** *($182.0 million)* program studies advanced computing applications and techniques and provides DOE researchers access to high performance computers for civilian scientific research. Through its computing facilities and research programs, the Department is enabling rapid strides in scientific simulation, an increasingly vital tool for researchers and engineers to test theories and model complex processes. In FY 2001, as part of the Administration's IT R&D initiative, the ASCR program will emphasize computer modeling and simulation R&D in several key areas of basic science including fusion, high energy physics, and genomics.

Life Sciences Initiative: DOE's Life Sciences Initiative proposes a total of $18.9 million in FY 2001 for work in two important scientific areas: microbial cells and bioengineering.

Microbial Cells – The study of microbes – organisms that have survived and thrived in extreme and inhospitable environments for 3.7 billion years – could hold the key to many of America's challenges in energy production and use, environmental cleanup, medicine, and agriculture and industrial processing. This work also promises important results for fields beyond the scope of DOE's missions.

Microbial genomics, first supported by DOE in 1993, as an outgrowth of the Department's pioneering work in the Human Genome Program, continues to be one of the most exciting and rapidly growing fields in biology today. Scientific advances over the last five years are enabling a fundamental shift in our approach to biology – from an understanding of parts of cells, to an understanding of the complex, dynamic behavior of entire cells – to gain information on how genetics affects physiological function.

In FY 2001, a $12.2 million initiative is proposed within the Office of Science, to expand DOE efforts in microbial cell research to: identify and characterize a minimum set of genes, proteins, and metabolic capabilities that are both necessary and sufficient for a microbe to survive; characterize the cell machinery and regulatory pathways responsible for making, transporting, and using all of the products needed for its survival; and, as part of DOE's long-term goals, design or engineer microbes to address mission needs, such as degradation or sequestration of hazardous waste, and efficient degradation of cellulose for producing sugars, alcohols, and biofuels. For example, an inexpensive way to degrade cellulose could turn an enormous part of society's wastes into useful sources of energy.

Bioengineering – The development of biologics, materials, processes, implants, devices, and information systems needed for tissue engineering, artificial bones, joints and other organ development requires the broad integration of many scientific disciplines and sophisticated technologies. Ongoing research at the Department's national laboratories in: mathematical simulation, sensors, micro-engineering, imaging, materials, lasers, electrochemistry, and fiber-optics present real opportunities to tap DOE's unique capabilities to advance bioengineering applications and technologies. The FY2001 budget proposes an increase of $5 million in the Office of Science, to leverage the laboratories' unique resources and expertise to provide innovative and high-risk solutions to medical application problems dealing with the diagnosis, prevention, and treatment of disease. This program will build on the 250 existing projects in bioengineering supported by DOE and other agencies, will engage the nation's leading medical schools and teaching hospitals, and will be coordinated with the federal government's Bioengineering Consortium.

Scientific User Facilities Initiative: As part of DOE's support of our nation's scientific infrastructure, the Department designs, constructs, and operates major scientific user facilities such as sychrotron light sources, combustion research facilities, facilities for atmospheric monitoring, gene sequencing, and spallation neutron sources, among others. These facilities serve the research needs of over 18,000 scientists yearly from universities, national laboratories, and private industry, enabling them to acquire new knowledge that often cannot be obtained by any other means.

To meet the increasing demand for operating time and improved research capabilities, the FY 2001 budget provides $30 million to enhance the use of DOE's biological,

environmental, and basic energy user facilities. These funds will allow upgrades, instrumentation development, infrastructure improvements, increased operating time, and increased support for users at several DOE user facilities.

Robotics and Intelligent Machines: Over the next 20 years, DOE will retire numerous strategic weapons, refurbish the remaining nuclear stockpile, clean up radioactive and other hazardous wastes that are the 50-year-old environmental legacy of nuclear weapons production, and dispose of the nation's spent nuclear fuel. These activities must be accomplished in a manner that ensures worker safety, speeds waste remediation, and minimizes defects, costs, and cycle time in weapons manufacturing.

Over the past year, DOE has developed a five-year technology roadmap to integrate research and development in robotics and intelligent machines (RIM) – systems composed of machines, sensors, computers, and software–throughout the DOE complex.

In FY 2001, the DOE request includes a total of $19.7 million for robotics and intelligent machine research. Of this total, $12.9 million is in the Office of Environmental Management, $4.2 million is in national security programs, and $2.7 million is in the Office of Science budget. This funding will carry out the first phase of an integrated research agenda. Activities will focus on applied research projects and prototype systems development including areas such as: sensor-based motion control; glove box automation; precision dexterity research; remote characterization of spent nuclear fuel; universal communications standards; multi-modal transportation systems; and micromanipulation.

Science for a Stronger, Safer America

National Security

The Department of Energy plays a critical role in preserving U.S. national security by managing the nation's nuclear arsenal and working to reduce the global danger from nuclear weapons and other weapons of mass destruction (WMD). The Department's work to support national security focuses on: maintaining the safety, security, and reliability of the nation's nuclear weapons; advancing arms control and nonproliferation initiatives; and providing the U.S. Navy with safe and reliable nuclear propulsion reactors.

Over the past several years, U.S. national security policies have undergone profound change, reflecting the new and evolving geopolitical and military exigencies of the post-Cold War world. The Department has shifted its priorities toward activities that maintain the nuclear stockpile in the absence of underground nuclear testing, reduce the proliferation threat caused by possible diversion of nuclear materials, provide leadership in policy support for arms control and nonproliferation efforts, and improve international nuclear safety policies. Supported by extensive R&D efforts, these programs promote the nation's nonproliferation strategy while maintaining the viability of the nuclear deterrent with a smaller, more cost effective, and secure nuclear weapons complex.

The Department's programs address growing concerns over the proliferation of weapons of mass destruction. At least 20 countries are known, or suspected to be developing such weapons. Key objectives of the DOE programs are to: support negotiations, implementation, and monitoring of international treaties and agreements in arms control, fissile material disposition, and nonproliferation; improve the accountability, control, and disposition of weapons, components, materials, and information in Russia and countries of the Former Soviet Union; reduce the risk of nuclear weapons or materials falling into the wrong hands through theft or diversion; and counter weapons of mass destruction terrorism.

The Department is expanding its programs with Russia to establish new and accelerated solutions to the most serious dangers presented by the Russian nuclear weapons complex and civilian nuclear facilities. These efforts will further encourage the Russians to reduce the production of plutonium; enhance the safety and proliferation resistance of nuclear reactors; accelerate the downsizing of the Russian nuclear weapons complex; and expand nuclear material protection activities to the most sensitive Russian Navy sites.

Department of Energy Security Improvements

On May 11, 1999, Secretary Richardson directed the most far-reaching security reorganization in DOE's history, to address heightened concerns about the security of America's nuclear weapons complex. These reforms included the establishment of a new Office of Security and Emergency Operations reporting directly to the Secretary, which is responsible for developing and implementing Department-wide safeguards and security policy, computer security, and emergency operations functions. Presidential Decision Directive/NSC-61, issued on February 11, 1998, called for the establishment of a new counterintelligence program for the Department that also reports directly to the Secretary. The Office of Counterintelligence became operational in April 1998. In addition, the Secretary established the Office of Independent Oversight and Performance Assurance to provide independent oversight on the effectiveness of safeguards and security, cyber security, emergency management policy, and to assess the effectiveness of the implementation of these policies by the field.

These security reforms have led to significant progress on security issues throughout the Department. The Office of Security and Emergency Operations has implemented several new policies to improve security at the national weapons laboratories, and production/test facilities now in various stages of development and implementation.

Since the Office of Counterintelligence was established, numerous counterintelligence measures have been implemented and new counterintelligence personnel have been designated at critical field operations offices and laboratories across the Department.

The Office of Independent Oversight and Performance Assurance has conducted independent reviews of field facilities, including all the nuclear weapons laboratories, resulting in security enhancements.

National Nuclear Security Administration (NNSA)

The National Defense Authorization Act for FY 2000, Public Law 106-65, established a semi-autonomous agency within the Department of Energy, the **National Nuclear Security Administration (NNSA)**. On January 1, 2000, the Department submitted the *NNSA Implementation Plan* to Congress. The plan anticipates that DOE will operate with two Under Secretaries -- one as the Administrator for the NNSA, and the second as overseer for DOE's energy, environmental, and science programs. We expect that an individual will be nominated to serve as the Under Secretary for Nuclear Security prior to March 1, 2000, when NNSA becomes operational.

NNSA will be comprised of the current DOE Offices of Defense Programs, Nonproliferation and National Security, Fissile Materials Disposition, and Naval Reactors. The Albuquerque and Nevada Field Operations Offices will report to the Deputy Administrator for Defense Programs as part of NNSA. The following support offices will

also be established within NNSA: a General Counsel of the NNSA; the Office of Defense Nuclear Counterintelligence; and the Office of Defense Nuclear Security. The Office of the NNSA Administrator will have staff to support legislative affairs, public affairs, intergovernmental liaison, budget, and procurement activities.

The Department will manage NNSA to permit laboratories and facilities to continue to conduct research for the non-NNSA programs of DOE and other government or private organizations. It is critically important that all of the missions of the Department have access to the technical expertise and specialized facilities at all of the laboratories and facilities. There will be challenges, particularly with regard to the development and coordination of general laboratory policies, the functioning of the Department's Research and Development Council, and other cross-cutting activities involving research and development activities across the agency.

On March, 1, 2000, the Department will establish the **Office of the NNSA Administrator** using existing resources within the Department. For FY 2001, the NNSA Administrator's Office will be supported by the resources proposed in the FY 2001 budget request. As detailed requirements are determined, the budget will need to be adjusted.

Funding for NNSA Programs

A total of $6,178 million is requested in FY 2001 for DOE programs which will be consolidated into the National Nuclear Security Agency. The FY 2001 total for these programs is an increase of $432 million, or eight percent above the FY 2000 level.

U.S. Department of Energy
FY 2001 Funding for
National Nuclear Security Agency (NNSA) Programs
($ in millions, rounded)

Program Office	FY 2000	FY 2001
Defense Programs	$4,321	$4,594
Nonproliferation & National Security	$547	$683
Fissile Materials Disposition	$202	$223
Naval Reactors	$675	$678
Total, NNSA Programs	***$5,745***	***$6,178***

Significant NNSA Program Changes

Defense Programs: The most significant increase in FY 2001 is in Defense Programs (DP). At $4.6 billion, this is an increase of $273 million over the comparable FY 2000 appropriation. The Administration is also requesting an additional $55 million in supplemental funding for FY 2000. The Supplemental Request will be used to cover expenses at DOE's weapons production facilities needed to preserve critical skills in the workforce and meet DOE/DOD weapons refurbishment schedules.

The FY 2001 budget structure for Defense Programs has changed to reflect evolving requirements of the stockpile stewardship program resulting from the need to maintain an aging stockpile without underground nuclear testing. During the last year, DP has undertaken a major shift in program management strategy, which resulted in significant changes to the supporting planning, budgeting, and organizational structure of the stockpile stewardship program. These changes will more closely integrate all research, development, and production activities within Defense Programs.

The FY 2001 request for Defense Programs supports the current infrastructure and anticipates no additional layoffs. The request also supports ongoing initiatives, protects the highest priority work associated with pit aging issues and surety improvements, and provides significant growth in stockpile activities

Nonproliferation and National Security: The FY 2001 request for the Office of Nonproliferation and National Security totals $682.6 million, a $135.4 million increase over FY 2000 appropriations. The increase includes $100 million for a long-term Russian Initiative; additional funding for the Nuclear Cities Initiative (+$10.0 million) and Chemical and Biological Nonproliferation (+2.1 million); and other arms control and R&D programs. In FY 2001, the Office of Nonproliferation and National Security is the lead DOE program of a proposed $100 million **Long-Term Nonproliferation Program for Russia**. The additional funding responds to recognized, but previously unaddressed threats to U.S. national security. This program builds on successful ongoing projects and allows DOE to take advantage of new opportunities presented by Russia to reduce the production of plutonium. The program will offer incentives, including a joint R&D program for enhancing proliferation resistance of nuclear fuel cycle technologies; the construction of a dry spent fuel storage facility at Mayak; and the exploration of permanent disposition options for spent nuclear fuel and high level waste in Russia.

Nonproliferation and the Nuclear Fuel Cycle ($70 million in FY 2001)

The fuel cycle aspect of the program seeks to prevent the further accumulation of separated civil plutonium at Mayak and support construction of a dry storage facility for civil reactor spent fuel at Mayak. These activities will employ displaced Mayak workers and eliminate any further addition to Russia's plutonium stockpile.

Through a program co-managed with DOE's Office of Nuclear Energy, Science and Technology, this effort will seek to develop technologies to enhance the proliferation resistance of nuclear fuel cycle technologies. This activity involves the development of a joint U.S.-Russian research and development program to enhance the proliferation resistance of existing nuclear systems and develop concepts for next-generation nuclear fuel cycle technologies.

Through a program co-managed with DOE's Office of Civilian Radioactive Waste Management, the United States and Russia will increase significantly research collaboration on long-term solutions that address the accumulation of plutonium-bearing nuclear spent fuel. This will include further developing the science of repositories, exploring other possibilities to manage spent fuel and high-level radioactive waste, and researching the issues involved in international consolidation of spent fuel storage.

These programs also will address continuing U.S. concerns over Russia's nuclear cooperation with Iran.

Nonproliferation and the Russian Nuclear Infrastructure ($30 million in FY 2001)

The infrastructure part of the program will: 1) reduce the proliferation threat presented by nuclear materials at highly sensitive Russian Navy nuclear sites; 2) consolidate plutonium and Highly Enriched Uranium (HEU) to fewer sites and into fewer buildings, and convert HEU to low enriched uranium; 3) facilitate return of Soviet-supplied HEU research reactor

fuel to Russia; 4) accelerate closure of serial production facilities; and 5) expand the situation crisis center to strengthen emergency response in the Russian nuclear complex.

Fissile Materials Disposition: DOE's nonproliferation strategy also includes the management of surplus fissile materials to U.S. national defense requirements. The Office of Fissile Materials Disposition manages these programs which include efforts to reduce the proliferation of surplus fissile materials from the weapons of the Former Soviet Union. The Department is proceeding with a hybrid plutonium disposition strategy that includes immobilizing surplus plutonium with ceramic material and another option to burn the material as mixed oxide (MOX) fuel in domestic commercial reactors. The $223.4 million request for the Office of Fissile Materials Disposition continues U.S. surplus materials disposition at the FY 2000 level, and allows for additional design activities.

Naval Reactors: The $677.6 million FY 2001 request for the Naval Reactors program supports the current operating fleet of reactors in use by the U.S. Navy, continues testing a new class of submarine plant, and deactivates six shutdown prototype reactors.

Other Defense Activities

Within the Department's National Security business line are program offices which will continue to report directly to the Secretary of Energy and will not be a part of NNSA. These organizations will provide support to the NNSA programs; however, because they also provide DOE-wide support, they will remain separate from the semi-autonomous agency. These other defense activities include: the Offices of Security and Emergency Operations *($340.4 million in FY 2001)*; Intelligence *($38.1 million in FY 2001)*; Counterintelligence *($45.2 million in FY 2001)*; Worker and Community Transition *($24.5 million in FY 2001)*; and Independent Oversight *($14.9 million in FY 2001)*.

The most significant increase in FY 2001 is within the $340.4 million total for the **Office of Security and Emergency Operations**, a $56.2 million increase over the FY 2000 level. This organization was formed in FY 2000 to improve and elevate accountability for DOE-wide security management by consolidating safeguards and security, security investigations, and emergency management activities. The increase proposed in FY 2001 for this activity mainly reflects the need for increased cyber-security activities.

Separately, the Administration will submit a supplemental appropriations request for FY 2000 for the Office of Security and Emergency Operations. An additional $8.0 million is sought in FY 2000 to provide adequate staffing for this important function and support cyber-security improvements.

In addition, another proposal among Secretary Richardson's May 11, 1999 security reforms was the consolidation of all safeguards and security funding throughout the DOE complex into one appropriations account with oversight by the Office of Security and Emergency Operations. Currently, safeguards and security activities are funded from overhead charges paid for by the use of the DOE national laboratories and other facilities and there is no single source for reviewing or accounting for the security budget. The Department anticipates that a budget amendment to the FY 2001 request will be transmitted in March to consolidate the cross-cutting safeguards and security activities.

Energy Options for a Stronger America

Energy Resources

Sound energy policy is not only important to the day-to-day functioning of our society, it is essential to the continued improvement of our standard of living. The nation is now in the middle of one of the strongest economic expansions in our history. Key to carrying this prosperity and stability into the next century is the harnessing of our scientific creativity to produce and use energy in new and environmentally sound ways.

One of DOE's most important jobs is, through its energy R&D programs, to enhance the nation's economic, environmental, and national security. To do this job well, it requires a clear understanding of the changing energy markets and technological opportunities, both at home and abroad. The Department must maintain a diverse R&D portfolio because no single option can solve all energy problems in the decades ahead and all energy options may become part of the solution. Also to be considered are the challenges of energy use, including their economic costs and environmental impacts. DOE and its private sector partners must work together to identify and develop those enabling technologies that show the most promise of success, and the wisest use of scarce public and private resources.

The Department's national energy strategy sets forth the following goals:

- *Improve the efficiency of the energy system* – make more productive use of energy resources in order to enhance overall economic performance while protecting the environment and advancing national security;
- *Ensure against energy disruptions* – protect our economy from external threats of interrupted supplies or infrastructure failure;
- *Promote energy production and use*, in ways that consider human health and environmental values – improve our health and local, regional, and global environmental quality;
- *Expand future energy choices* – pursue continued progress in our science and technology to provide future generations with a robust portfolio of clean and inexpensive energy sources; and
- *Cooperate internationally on energy issues* – develop the means to identify, manage, and resolve global economic, security, and environmental concerns.

The FY 2001 budget for Energy Resource programs reflects these objectives. The Energy Resources business line totals $2.2 billion, a $175 million increase over the comparable FY 2000 appropriation. The FY 2001 budget also features cross-cutting initiatives that address key components of U.S. energy strategy.

FY 2001 Cross-Cutting Energy Initiatives

Climate Change Technology Initiative

Research, development, and accelerated use of energy efficient and clean energy technologies are major elements of the solution to global climate change. In fact, advanced science and basic research is so important to meeting these challenges that even without the threat of global climate change, these investments would still be wise national policy: to increase energy security, improve air quality, and strengthen national economic competitiveness.

U.S. Department of Energy
FY 2001 Funding for Energy Initiatives
($ in thousands)

Initiative	FY 2000	FY 2001
Climate Change Technology	$979,772	$1,169,300
International Clean Energy	$0	$46,000
Energy Grid Reliability	$13,100	$36,128
Carbon Sequestration	28,660	42,579
Enhanced Ultra Clean Transportation Fuels	$9,500	$27,000

This point was made in a 1997 report by the President's Committee of Advisors on Science and Technology (PCAST) and is reflected in the FY 2001 request of $1.1 billion for climate change technology programs. This is a 19 percent increase over the comparable total for FY 2000 climate related activities. The Department conducts crosscutting work to accelerate the research, development, demonstration, and deployment of energy efficient and clean technologies. DOE is proposing a broad and balanced R&D technology deployment portfolio that includes: advanced clean renewable and fossil energy production; carbon sequestration; energy efficiency applications in the building, industry, and transportation sectors; basic and applied sciences support; targeted programs for baseline measurement and tracking of greenhouse gas emissions; and nuclear energy plant optimization.

International Clean Energy Initiative

A conclusion reached in a more recent PCAST report is that current energy R&D investments, while generally effective, are not adequate in scale to address world energy, environmental, and market demands. The PCAST report found that the most conspicuous gap was in the demonstration and cost buy-down areas, a crucial link in the chain from basic research to commercial deployment.

The Department's activities in the President's *International Clean Energy Initiative* focuses on this critical link -- identifying and developing pre-commercial energy technologies and potential markets for their deployment, promoting efficient and environmentally sound energy production, generation, and end use. By encouraging international markets for these technologies, their cost will go down and create new, clean, and affordable energy options for America.

The Department, largely through extension of existing RD&D programs, proposes a series of investments totaling $46 million in FY 2001 to support the PCAST recommendations. The specific R&D work will be managed by the Fossil Energy, Nuclear Energy, and Energy Efficiency & Renewable Energy programs -- drawing on the expertise of DOE laboratories, universities, industry, and international partners.

Energy Grid Reliability Initiative*: *Reliable Energy Systems for the 21st Century

By 2015, the United States will likely add 250,000 megawatts of new power generation to today's grid, at the same time the grid is responding to the demands of evolving competitive electricity markets. Measures taken to limit transmission loading and preserve system reliability were contributing factors to the shortages of power in mid-western wholesale markets in the summer of 1998. Cascading power failures in 1996 cost the California agriculture industry about $2.0 billion in product spoilage. In addition, the natural gas and electricity industries and their supporting infrastructures are merging, creating a set of new reliability issues and problems.

In this continuing transition from regulated to restructured electricity and natural gas markets, the need to ensure the reliability and security of energy delivery systems is an increasingly important priority for the federal government. Energy policies and technologies must support the "Intergrid" – the increasingly inter-connected energy delivery system of the 21st century.

Through a public-private sector partnership, this multi-program initiative, totaling $36.1 million in FY 2001, focuses on the development of the policies and technologies (e.g. system simulation, power storage, real-time sensors and controls, and new distributed power options) that will help protect against potential new market failures and promote reliability through system flexibility, efficiency, and security. Funding for this is requested in the Fossil Energy, Solar and Renewable Energy, and Critical Infrastructure (NN) programs.

Carbon Control Through Separation and Sequestration Initiative (CCSS)

Fossil energy will continue to provide a significant and growing fraction of world energy supplies well into the next century. As demand continues to grow, world carbon emissions are expected to increase by 3.5 billion metric tons over current levels, by 2015. "Business as usual" greenhouse gas emissions may lead to a significant elevation of average global temperatures, disrupt patterns of world agricultural production, and have wide-ranging impacts on human health.

DOE's Fossil Energy and Science programs are developing an "Evolving Science and Technology Roadmap for Carbon Sequestration" to identify ways to mitigate the impacts of carbon emissions. The roadmap already has pin-pointed specific scientific/technical focus areas for R&D including: separation and capture; sequestration in geological formations; ocean sequestration; terrestrial ecosystem sequestration; and advanced concepts (e.g., chemical and biological).

In addition to modeling and assessment techniques, these areas will form the central elements of DOE's CCSS initiative. This program, totaling $42.6 million in FY 2001, is designed to: establish the technical and economic feasibility of sequestration; drive down the cost of CO_2 separation; determine the environmental consequences of large-scale CO_2 storage; integrate sequestration technologies with natural sinks; develop innovative technologies to produce marketable commodities from CO_2; and incorporate carbon sequestration processes into advanced energy production and utilization systems.

Enhanced Ultra Clean Transportation Fuels Initiative

For the foreseeable future, the nation's vehicles will be powered mostly with petroleum-based fuels. The prototype next-generation vehicle, being developed through the

Administration's **Partnership for a New Generation of Vehicles (PNGV)** program, must have the cleanest possible fuels. In addition, both gasoline and diesel fuels will have to comply with strict EPA regulations (e.g. sulfur, nitrogen oxide, and particulate emissions reductions and possible restrictions on oxygenate additives).

There are environmental, regulatory, and technological drivers which point to the need for a significant and focused effort to develop super-clean petroleum-based transportation fuels. The multi-program **Enhanced Ultra Clean Fuels Initiative**, $27 million in FY2001, targets government and industry resources to develop a portfolio of market-viable, advanced petroleum-based highway transportation fuels and fuels utilization technologies, that are responsive to the near to mid-term environmental, technical, and regulatory challenges. This will significantly enhance U.S. energy security, environmental quality, and industrial competitiveness. Funding for this is requested in the Energy Conservation and Fossil Energy budgets.

Bioenergy/Bioproducts Initiative: DOE has increased funding for bioenergy and bioproducts activities by $49.0 million in FY 2001 to accelerate work in this important area. A total of $174.0 million is included in the FY 2001 budgets of the Office of Energy Efficiency and Renewable Energy *($144.2 million)* and the Office of Science *($29.5 million)* to help make biomass a viable competitor to oil or coal as an energy source or chemical feedstock. Work will concentrate on developing "biorefineries" – integrated systems for processing feedstocks simultaneously into a variety of products such as fuels, chemicals, and electricity. This will require increased collaboration among industry, DOE programs, and the U.S. Department of Agriculture. DOE will use established industry visions and roadmapping techniques to identify the highest priority targets. Interdisciplinary teams will identify common linkages among fermentation, gasification, and other related activities.

DOE will work to develop inexpensive cellulase systems to break down cellulose into low-cost sugars for the production of bio-based chemicals and bioenergy. This will allow woody and grassy crops and agricultural waste such as corn stalks to take the place of high-value grain and food crops as biofuel feedstocks. Research will be conducted in renewable bioproducts, using multi-disciplinary and cross-industry partnerships to develop and accelerate adoption of possible "leap-frog" technologies for converting crops, trees, and residues into chemical feedstocks and consumer products. Another part of the initiative will focus on DOE's work in biopower to promote the integration of biomass gasification systems with modern generation systems, and co-firing of biomass with coal.

Significant Energy Resources Program Changes

Energy Efficiency: A total of $1.3 billion is requested for Office of Energy Efficiency and Renewable Energy programs, a $192 million increase over the FY 2000 comparable appropriation. Funding for Energy Conservation, $850.5 million in FY 2001, supports the initiatives mentioned above and also supports ongoing programs, such as: Partnership for a New Generation of Vehicles, PNGV *($129.1 million, FY00;142.5 million, FY01)*; the Weatherization Assistance Program *($135.0 million, FY00; $154.0 million,FY01)* to support energy efficiency improvements targeting lower-income households; Building Research and Standards *($75.4 million, FY00; $100.1 million FY01)* emphasizing cost-shared projects that offer the greatest energy savings and environmental benefits; Industries of the Future *($160.4 million FY 00; $174.7 million, FY01)* to support public-private

partnerships to cut waste, emissions, and energy use by U.S. industries; and the Federal Energy Management Program *($29.5 million, FY01; $23.9 million,FY00)* to leverage private sector financial assistance to reduce federal energy use and costs.

Renewable Energy: In Renewable Energy, the following new activities will be supported: to increase the net energy output of biopower systems: **Wind Powering America** will be initiated to catalyze wind development in the United States; and the **Geopowering the West Initiative** will help expand the use of a clean source of electricity and heat for the American west. The initiative will increase public awareness of geothermal's potential, educate communities, and provide technical support *(FY 2000 $23.6; FY 2001 $27.0)*.

Fossil Energy: In Fossil Energy Research and Development, $375.6 million is requested, a decrease of $28.4 million from the FY 2000 comparable level. This request will support the carbon sequestration, energy infrastructure reliability, ultra-clean transportation fuel, and International Clean Energy Initiatives and will also: continue **Vision 21** activities to develop power generation and fuel producing technologies that will reduce, or perhaps nearly eliminate, carbon emissions from fossil fuel facilities; emphasize technology transfer in natural gas and petroleum, especially to independent producers that encompass an increasingly large share of the domestic oil and gas industry; and begin implementing an expanded infrastructure R&D program, including gas transmission and utility pipeline system and storage technology to meet future demand.

The request also supports designation of the former Federal Energy Technology Center as the **National Energy Technology Laboratory** to highlight the importance of a dedicated fossil fuels research facility. Secretary Richardson also established a Center for Advanced Natural Gas Studies to strengthen the laboratory's core capabilities in this area. This will be the primary DOE place for natural gas research – from the borehole to the burner.

Nuclear Energy: The $273.4 million request proposed for Nuclear Energy programs will support: the **Fast Flux Test Facility** *($FY 2000 $28.0; FY 2001 $44.0)*, to maintain the facility in full compliance with applicable regulations and begin implementation of the Record of Decision on the future of this facility; **Uranium Programs** *(FY 2000 $41.9; FY 2001 $53.4)* to depleted uranium hexafluoride conversion and support canister maintenance activities at the Gaseous Diffusion Plants; and a new **International Clean Energy Initiative/International Nuclear Energy Research Initiative** (I-NERI) *($7.0 million)* to promote foreign collaborative research that improves the cost, safety, waste management, and proliferation resistance of advanced nuclear energy systems.

Environmental Quality

Environmental Quality: Accelerating Progress, Meeting Commitments

In Environmental Quality programs, DOE is meeting a number of major challenges with the paramount objective of protecting the health and safety of workers, the public, and the environment.

For over 40 years, the Department and its predecessors met U.S. national security commitments by building a strong nuclear deterrent. Now, there is a new commitment to address the environmental legacy of nuclear weapons production. When nuclear weapons production ceased in the late 1980's, the Department of Energy faced the challenge of cleaning up thousands of contaminated buildings, millions of cubic meters of waste, and tons of nuclear weapons material. These materials are located at sites spread over 30 states,

occupying a land area equal to the size of Rhode Island and Delaware combined – almost two million acres. DOE manages the largest environmental cleanup program in history. About one-third of the fiscal year budget is dedicated to restoring contaminated lands and managing by-product wastes of the Cold War. While the task of cleaning up these wastes will take decades to complete, we are striving to complete cleanup of the bulk of the sites by 2006. We will continue to make substantial cleanup progress at the remaining sites.

The Department is taking an aggressive approach to address the immediate and long-term environmental and health risks of the Department's weapons complex and to resolve the issues surrounding spent nuclear fuel storage. Great progress was made when the Waste Isolation Pilot Plant in New Mexico opened in March 1999, as a safe, permanent disposal location for transuranic nuclear wastes.

DOE is also addressing the need for a permanent nuclear waste repository for commercial spent nuclear fuel. In December 1998, DOE completed a viability assessment of the Yucca Mountain site in Nevada that identified the remaining technical issues to be resolved before a decision could be made on whether or not to recommend the site for development as a repository. DOE is continuing the scientific work at Yucca Mountain and is on a schedule for the Secretary of Energy to make a recommendation on the site to the President and the congress in calendar year 2001.

In all of these activities, health and safety remain the utmost priority. DOE continues to work cooperatively with states and communities near DOE facilities to ensure that waste and disposal activities across the country are accomplished in a manner that secures a cleaner and safer environment for our children's future.

For FY 2001, the Department is requesting $6.8 billion for Environmental Quality programs. This request focuses resources on site closure and the completion of projects with a targeted approach to cleanup. The FY 2001 request will enable the DOE to address the highest human health, safety, and environmental risks within the Department of Energy complex. It will also allow the Department to continue its progress to answer some of the most critical questions in the area of long-term nuclear waste disposal.

Significant Environmental Quality Program Changes

In 1999, Secretary Richardson reached agreement with the Governors of Colorado, South Carolina, Tennessee, and Washington on a Statement of Principles laying the foundation for a cooperative working relationship between DOE and the states with DOE cleanup sites. Each Statement of Principles outlined issues common to all of the states, as well as issues specific to the individual states, and delineated the manner in which DOE and the states will work cooperatively to clean up the lingering Cold War legacy. The mutually agreed- upon issues included: completing the cleanup of the nuclear weapons sites as expeditiously as possible, and in compliance with state and federal regulations; obtaining a commitment to seek predictable and adequate funding for the cleanup; continuing investments in science and technology; and protecting groundwater assets.

Environmental Management: As part of this new approach, a total of $6.3 billion for Environmental Management programs (both Defense and Non-Defense) is requested in the FY 2001 budget. This amount is required to ensure each cleanup site meets safety and legal requirements, supports accelerated cleanup and site closure, and maintains other critical environmental priorities.

Of this amount, $515 million continues the Department's *EM Privatization Initiative* begun in FY 1997. The Privatization approach supports DOE in obtaining better prices for completing projects using fixed price contracts, and is being used for several of the Department's large scale environmental cleanup design and construction activities. Under this approach, many of the technical and performance risks are shifted to the private contractor, creating greater incentives to complete projects on time and within budget. This contracting approach will also bring private sector expertise and new technology to the Department's cleanup program. The FY 2001 budget requests significant increases to maintain the Tank Waste Remediation System project at Hanford, Washington on schedule.

Moab Site Cleanup

The FY 2001 request for Environmental Management also includes $10 million for environmental cleanup in Moab, Utah that is part of a larger land transfer proposal pending before Congress. In January 2000, Secretary Richardson announced support for the largest voluntary return of land to Native Americans in the lower 48 states in more than a century; and DOE's agreement to clean up and remove 10.5 million tons of radioactive mill tailings from the doorstep at two national treasures – Arches National Park and Canyonlands National Park, near Moab, Utah. Also part of the agreement is additional environmental protection for a 75 mile stretch of the Green River.

Under the agreement, DOE's Naval Oil Shale Reserve No. 2 would be returned to the Ute Tribe. The land, which is rich in oil shale deposits, was taken from the Ute reservation in 1916 for use as a potential source of fuel for the Navy's oil-burning ships. As part of the agreement, the Ute Tribe would establish a 1/4-mile land corridor for a 75-mile stretch of the Green River to be protected as environmentally sensitive. A portion of any royalties from future energy production on the returned lands would be used by the Department to help clean up the nation's fifth largest pile of uranium mill tailings at the Moab site.

Cleanup at Gaseous Diffusion Sites

Reports of alleged health and environmental problems at DOE's Gaseous Diffusion Plant (GDP) in Paducah, Kentucky surfaced in late July 1999. Immediately, Secretary Richardson announced an eight-point strategy to investigate, identify, and remedy any past or remaining health, safety, and environmental problems at the operating GDPs at Paducah and Portsmouth, Ohio. The Secretary's appointed investigation team recommended areas of concern prompting a request for funding to achieve health surveillance, safety assessments, and environmental remediation goals within a rapid time frame. In September 1999, the Administration sent a $21.6 million FY 2000 budget amendment to Congress. In February 2000, the Administration will submit a $26 million FY 2000 Supplemental Budget Request to Congress and, with DOE's FY 2001 budget, significantly increase funding for the two GDP sites.

To meet stated commitments to the workers and community of Paducah, the budget proposes nearly double the amount available in FY 1999 – and a 53 percent increase over FY 2000. The request includes: $78 million to accelerate environmental cleanup activities, particularly in critical areas identified by the Secretary's investigation team; $17.9 million to develop and design a conversion program for uranium hexafluoride and to maintain cylinders at the site; $4.3 million to continue medical surveillance, health and environment monitoring; and $3 million for worker transition programs.

For the Portsmouth GDP site, the budget provides substantial increases for health, safety, and cleanup programs of almost twice the level provided in FY 1999; and an increase of 65 percent over FY 2000. Included in the FY 2001 request are: $76.2 million for cleanup activities; $21 million for uranium hexafluoride conversion and maintenance; $4.3 million for worker health, safety, and environmental programs; and $3 million for worker transition.

Environment, Safety and Health: Within the $166 million total requested for Environment, Safety and Health programs is $17 million to address DOE's commitment to worker safety and health.

Energy Employee Compensation Initiative

New in FY 2001is the **Energy Employee Compensation Initiative** for which the Department has submitted pending legislation. The proposal would establish an occupational illness compensation program for the Department of Energy's contract workers at its nuclear facilities. The bill has three parts, each addressing a specific group of workers eligible for compensation benefits:

- the Energy Employee's Beryllium Compensation Act addressing current and former DOE federal and contract workers with beryllium disease. Eligible workers would receive reimbursement for prospective medical costs associated with the illness and a portion of lost wages, or have the option of receiving a single, lump sum benefit of $100,000;
- the Paducah Employees' Exposure Compensation Act, addressing Paducah, Kentucky employees exposed to radioactive materials;
- and a specific group of Oak Ridge, Tennessee employees determined by an independent panel of occupational physicians to have illnesses due to workplace exposure.

Secretary Richardson has also established the **Chronic Beryllium Disease (CBD) Prevention Program.** Contractors at DOE sites with the potential for worker exposure to beryllium, a metal used in many nuclear applications, are required to submit a detailed plan to meet prevention program requirements. This is intended to minimize the number of future cases of disease from current workers. The program also calls for monitoring the health of "beryllium-associated" workers to promote early detection of CBD.

Civilian Radioactive Waste Management*:* DOE is requesting a total of $437.5 million in FY 2001, for Radioactive Waste Management activities. This is an increase of $90.3 million over the FY 2000 level. This request supports the schedule of work included in the Viability Assessment and includes increases for design and engineering work for the Yucca Mountain project.

Management of the Department of Energy

Making Changes and Getting Things Done

New Field Structure: In April 1999, Secretary Richardson directed management reforms to change the structure of reporting relationships between DOE's field and headquarters operations. The objective was to provide clearer and more direct lines of accountability and responsibility for the management and operation of DOE facilities. To accomplish this, the Secretary first established a "Lead Program Secretarial Office" (LPSO) management structure, pursuant to which each field operations office reports to a headquarters program

office. The LPSO's were given line authority over field office operations and are accountable for implementing Departmental policies at these facilities. The Secretary also established the Field Management Council (FMC), led by the Deputy Secretary and Chief Operating Officer of the Department, to coordinate the development and implementation of policies affecting field office operations. Finally, the Operations and Field Managers were made responsible for all site programs and project execution, contract management, and facility operations oversight. The Office of Field Integration was dismantled in FY 2000 and limited remaining functions were absorbed by other organizations.

Project Management: Also announced in 1999 was the Project Management Initiative undertaken by Secretary Richardson to strengthen and improve management of construction and other major site projects. DOE's Engineering and Construction Management group was established within the Office of the Chief Financial Officer to:

- establish a project management tracking and control system for all projects valued at $20 million or more; and
- place projects with significant issues or emerging problems on a Chief Operating Officer's Watch List, with potential funding and personnel control consequences.

Federal Employment Level: In 1995, the Department began a comprehensive effort to downsize its operations. The goal was to accomplish a 25 percent reduction in federal staffing by the end of FY 2001. The Department met that goal in January 1999 -- almost two years ahead of schedule. Contractor employment has also come down significantly and as of the end of 1999, contractor employment is 31 percent lower than in 1992.

In December 1998, Secretary Richardson launched the "Workforce for the 21st Century" Initiative. Workforce 21, to build a talented and diverse workforce to strengthen our technical and management capabilities and address new challenges. Workforce 21 addresses workforce readiness issues exacerbated by the downsizing of the federal government – significant skills gaps within the scientific and technical areas and an aging workforce. Only 11 percent of the Department's workforce is under the age of 35 and only 8 percent of the technical workforce is under 35. For the first time in four years, under Workforce 21, the Department has been able to target hiring of key technical personnel and strengthen recruitment and internship programs to create a pipeline of employees ready to enter the DOE workforce at the entry and mid-level jobs.

Increasingly, the Department competes with private industry to recruit and retain the highly skilled personnel required to deliver DOE's missions. The growing skills gap has been recognized by the General Accounting Office, the Office of Inspector General, and the Defense Authorizing Committees. As a follow-on to Workforce 21 and in response to recommendations by oversight organizations, Secretary Richardson has proposed a **Scientific Recruitment and Retention Initiative** in the FY 2001 budget. Funding for this initiative totals $10.0 million in FY 2001.

Diversity Programs: Under Workforce 21, the Department has an opportunity and responsibility to address the longstanding under-representation of women and minorities in senior management and technical positions. Secretary Richardson has initiated an extensive review of workforce management practices to identify barriers that hinder the promotion of a more representative workforce. The review resulted in a Department-wide strategic plan called "*Achieving and Promoting a Workforce that Looks Like America: A Companion to*

Workforce 21." This plan establishes accountability and tracking systems, now in place, to build a representative workforce and instill workforce management systems that foster equal opportunity in hiring, promotion, and training practices.

Secretary Richardson has also established a task force against racial profiling and has emphasized the need to promote more partnerships with minority educational institutions.

Detailed Budget Summary

The following sections, organized by appropriation, discuss in detail our proposed FY 2001 budget request which represents a strong portfolio of investments to bring about a better future. The FY 1999 and FY 2000 amounts are adjusted to reflect the FY 2001 budget structure. The FY 2001 budget request and the Performance Plan lay out DOE's strategic objectives and provide the congress and the American people with information on the results we propose to achieve with this request.

Summary by Business Line

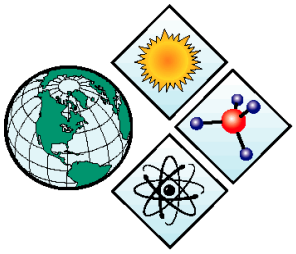
	FY 1999 Comparable Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress	FY 2001 Request vs. FY 2000	
Business Lines					
Environmental Quality					
Environmental Management	5,591,628	5,662,428	5,802,863	140,435	2.5%
EM privatization	228,357	188,282	515,000	326,718	173.5%
Civilian Radioactive Waste Mgmt	353,314	347,175	437,500	90,325	26.0%
Interim Storage Activities	——	——	-85,000	-85,000	——
Environment, Safety and Health	140,037	127,803	166,050	38,247	29.9%
Total, Environmental Quality	**6,313,336**	**6,325,688**	**6,836,413**	**510,725**	**8.1%**
National Security					
National Nuclear Security Administration					
Defense Programs	4,284,712	4,321,242	4,594,000	272,758	6.3%
Nonproliferation & National Security	579,644	547,237	682,600	135,363	24.7%
Fissile Materials Disposition	199,241	201,673	223,435	21,762	10.8%
Naval Reactors	666,140	675,125	677,600	2,475	0.4%
Total, National Nuclear Security Administration	5,729,737	5,745,277	6,177,635	432,358	7.5%
Intelligence	36,059	34,927	38,059	3,132	9.0%
Counterintelligence	22,541	37,421	45,200	7,779	20.8%
Worker and Community Transition	28,202	24,012	24,500	488	2.0%
Security & Emergency Operations	245,622	264,151	320,376	56,225	21.3%
Independent Oversight	9,633	13,038	14,937	1,899	14.6%
Total, National Security	**6,071,794**	**6,118,826**	**6,620,707**	**501,881**	**8.2%**
Science and Technology					
Science	2,846,108	2,814,551	3,151,065	336,514	12.0%
Technical Information Management	8,586	8,600	9,302	702	8.2%
Total, Science and Technology	**2,854,694**	**2,823,151**	**3,160,367**	**337,216**	**11.9%**
Energy Resources					
Energy Efficiency & Renewable Energy	950,313	1,068,037	1,260,000	191,963	18.0%
Fossil Energy	545,386	416,291	406,570	-9,721	-2.3%
Nuclear Energy Science & Technology	266,050	285,073	306,093	21,020	7.4%
Power Marketing Administrations					
Southeastern	7,500	7,806	3,900	-3,906	-50.0%
Southwestern	25,953	28,664	28,100	-564	-2.0%
Western Area	202,607	192,602	164,916	-27,686	-14.4%
Falcon & Amistad operating & maintenance	994	1,309	2,670	1,361	104.0%
Total, Power Marketing Administrations	237,054	230,381	199,586	-30,795	-13.4%
Energy Information Administration	70,185	72,368	75,000	2,632	3.6%
Total, Energy Resources	**2,068,988**	**2,072,150**	**2,247,249**	**175,099**	**8.5%**
Total, Business Lines	**17,308,812**	**17,339,815**	**18,864,736**	**1,524,921**	**8.8%**
Russian plutonium disposition	200,000	-49,000	——	49,000	——
Russian uranium disposition	325,000	——	——	——	——
Corporate management and other	134,162	73,193	73,235	42	0.1%
Total, Department of Energy	**17,967,974**	**17,364,008**	**18,937,971**	**1,573,963**	**9.1%**
DOE Civilian programs (250/270 function) funding	*(5,492,030)*	*(5,375,625)*	*(5,927,390)*	*(551,765)*	*(10.3%)*
DOE Defense (050 function) funding	*(12,475,944)*	*(11,988,383)*	*(13,010,581)*	*(1,022,198)*	*(8.5%)*

Crosswalk from Appropriation Structure to Business Line

	FY 2001 Request to Congress	Environ-mental Quality	National Security	Science and Technology	Energy Resources	Other
Energy and Water Development						
Energy Supply	764,895	40,000	——	9,302	715,593	——
Non-Defense Environmental Management	286,001	286,001	——	——	——	——
Uranium Enrichment D&D Fund	303,038	303,038	——	——	——	——
Science	3,151,065	——	——	3,151,065	——	——
Departmental Administration	84,577	——	——	——	——	84,577
Inspector General	33,000	——	——	——	——	33,000
Interim Storage Activities	-85,000	-85,000	——	——	——	——
National Nuclear Security Administration						
Weapons Activities	4,594,000	——	4,594,000	——	——	——
Other Nuclear Security Activities	1,583,635	——	1,583,635	——	——	——
Total, National Nuclear Security Administration	6,177,635	——	6,177,635	——	——	——
Environmental and Other Defense Activities						
Defense Env. Restoration & Waste Mgmt	4,551,527	4,551,527	——	——	——	——
Defense Facilities Closure Projects	1,082,297	1,082,297	——	——	——	——
EM privatization	515,000	515,000	——	——	——	——
Energy Employees Compensation Initiative	17,000	17,000	——	——	——	——
Other Defense Activities	555,122	109,050	443,072	——	——	3,000
Defense Nuclear Waste DIsposal	112,000	112,000	——	——	——	——
Total, Environmental and Other Defense Activities	6,832,946	6,386,874	443,072	——	——	3,000
Power Marketing Administrations	199,586	——	——	——	199,586	——
Federal Energy Regulatory Commission	——	——	——	——	——	——
Nuclear Waste Disposal Fund	325,500	325,500	——	——	——	——
Geothermal Resources Development Fund	——	——	——	——	——	——
Total, Energy and Water Development	18,073,243	7,256,413	6,620,707	3,160,367	915,179	120,577
EWD Civilian programs (250/270 functions) funding	*(5,062,662)*	*(869,539)*	——	*(3,160,367)*	*(915,179)*	**********
EWD Defense (050 function) funding	*(13,010,581)*	*(6,386,874)*	*(6,620,707)*	——	——	*(3,000)*
Interior and Related Agencies						
Fossil Energy Research & Development	375,570	——	——	——	375,570	——
Alternative Fuels Production	-1,000	——	——	——	-1,000	——
Naval Petroleum & Oil Shale Reserves	——	——	——	——	——	——
Elk Hills school lands fund	36,000	——	——	——	36,000	——
Energy Conservation	850,500	——	——	——	850,500	——
Economic Regulation	2,000	——	——	——	——	2,000
Strategic Petroleum Reserve	151,000	——	——	——	151,000	——
Energy Information Administration	75,000	——	——	——	75,000	——
Clean Coal Technology	-155,000	——	——	——	-155,000	——
Total, Interior and Related Agencies	1,334,070	——	——	——	1,332,070	2,000
UE D&D Fund discretionary payments	-420,000	-420,000	——	——	——	——
Excess FERC receipts	-28,342	——	——	——	——	-28,342
Colorado River Basin	-21,000	——	——	——	——	-21,000
Total, Department of Energy	**18,937,971**	**6,836,413**	**6,620,707**	**3,160,367**	**2,247,249**	**73,235**
DOE Civilian programs (250/270 function) funding	*(5,927,390)*	*(449,539)*	——	*(3,160,367)*	*(2,247,249)*	*(70,235)*
DOE Defense (050 function) funding	*(13,010,581)*	*(6,386,874)*	*(6,620,707)*	——	——	*(3,000)*

Summary by Appropriation Account

	FY 1999 Comparable Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress	FY 2001 Request vs. FY 2000	
Energy and Water Development					
Energy Supply	656,382	642,828	764,895	122,067	19.0%
Non-Defense Environmental Management	405,420	307,229	286,001	-21,228	-6.9%
Uranium Enrichment D&D Fund	220,153	249,247	303,038	53,791	21.6%
Science	2,841,234	2,814,551	3,151,065	336,514	12.0%
Departmental Administration	141,402	80,025	84,577	4,552	5.7%
Inspector General	28,922	29,500	33,000	3,500	11.9%
Interim Storage Activities	——	——	-85,000	-85,000	——
National Nuclear Security Administration					
Weapons Activities	4,285,796	4,321,242	4,594,000	272,758	6.3%
Other Nuclear Security Activities	1,645,025	1,375,035	1,583,635	208,600	15.2%
Total, National Nuclear Security Administration	5,930,821	5,696,277	6,177,635	481,358	8.5%
Environmental and Other Defense Activities					
Defense Env. Restoration & Waste Mgmt	4,322,403	4,465,505	4,551,527	86,022	1.9%
Defense Facilities Closure Projects	1,041,740	1,060,447	1,082,297	21,850	2.1%
EM privatization	228,357	188,282	515,000	326,718	173.5%
Energy Employees Compensation Initiative	——	——	17,000	17,000	——
Other Defense Activities	763,623	466,298	555,122	88,824	19.0%
Defense Nuclear Waste DIsposal	189,000	111,574	112,000	426	0.4%
Total, Environmental and Other Defense Activities	6,545,123	6,292,106	6,832,946	540,840	8.6%
Power Marketing Administrations	237,054	230,381	199,586	-30,795	-13.4%
Federal Energy Regulatory Commission	——	——	——	——	——
Nuclear Waste Disposal Fund	164,465	235,601	325,500	89,899	38.2%
Geothermal Resources Development Fund	——	-821	——	821	100.0%
Total, Energy and Water Development	**17,170,976**	**16,576,924**	**18,073,243**	**1,496,319**	**9.0%**
EWD Civilian programs (250/270 functions) funding	*(4,695,032)*	*(4,588,541)*	*(5,062,662)*	*(474,121)*	*(10.3%)*
EWD Defense (050 function) funding	*(12,475,944)*	*(11,988,383)*	*(13,010,581)*	*(1,022,198)*	*(8.5%)*
Interior and Related Agencies					
Fossil Energy Research & Development	376,509	403,933	375,570	-28,363	-7.0%
Alternative Fuels Production	-838	——	-1,000	-1,000	——
Naval Petroleum & Oil Shale Reserves	13,953	——	——	——	——
Elk Hills school lands fund	36,000	——	36,000	36,000	——
Energy Conservation	618,995	758,742	850,500	91,758	12.1%
Economic Regulation	1,785	1,992	2,000	8	0.4%
Strategic Petroleum Reserve	159,925	158,396	151,000	-7,396	-4.7%
Energy Information Administration	70,185	72,368	75,000	2,632	3.6%
Clean Coal Technology	-40,163	-146,038	-155,000	-8,962	-6.1%
Total, Interior and Related Agencies	**1,236,351**	**1,249,393**	**1,334,070**	**84,677**	**6.8%**
UE D&D Fund discretionary payments	-398,088	-420,000	-420,000	——	——
Excess FERC receipts	-25,167	-21,309	-28,342	-7,033	-33.0%
Colorado River Basin	-16,098	-21,000	-21,000	——	——
Total, Department of Energy	**17,967,974**	**17,364,008**	**18,937,971**	**1,573,963**	**9.1%**
DOE Civilian programs (250/270 function) funding	*(5,492,030)*	*(5,375,625)*	*(5,927,390)*	*(551,765)*	*(10.3%)*
DOE Defense (050 function) funding	*(12,475,944)*	*(11,988,383)*	*(13,010,581)*	*(1,022,198)*	*(8.5%)*



Energy Supply

Mission

The Energy Supply appropriation accounts support a variety of applied energy research and development programs as well as programs providing environmental oversight and mitigation. Organizations with activities supported by this appropriation include Solar and Renewable Resources Technologies; Nuclear Energy; Environment, Safety and Health; and Technical Information Management.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Energy Supply					
Solar and renewable resources technologies	380,224	357,216	456,600	99,384	27.8%
Nuclear energy	271,525	285,243	308,445	23,202	8.1%
Environment, safety & health	47,757	38,043	40,000	1,957	5.1%
Technical information management	8,836	8,600	9,302	702	8.2%
Other	5,874	996	——	-996	-100.0%
Subtotal, Energy Supply	714,216	690,098	814,347	124,249	18.0%
Use of prior year balances & other adjustments	-57,834	-47,270	-49,452	-2,182	-4.6%
Total, Energy Supply	656,382	642,828	764,895	122,067	19.0%

Solar and Renewable Resources Technologies

Mission

To fulfill its mission, the Office of Energy Efficiency and Renewable Energy (EERE) supports research and development efforts in energy efficiency, power delivery, and renewable technologies in the power, building, transportation, and industry sectors.

Program Overview

EERE is funded in two appropriation bills. Renewable Energy programs, discussed here, are in the Energy Supply account of the Energy and Water Development Appropriations Bill. Energy Efficiency programs are in the Energy Conservation account in the Interior and Related Agencies Appropriation and are discussed in the section on the Interior and Related Agencies Appropriation.

EERE's Energy Supply programs are designed to improve the performance and reduce the costs of a broad range of renewable supply technologies and technologies that will ensure

the efficient and reliable delivery of electric services in competitive restructured electric markets. Included are programs on: alternative transportation fuels, solar buildings, photovoltaic, concentrating solar power, biomass, wind energy, geothermal, hydroelectric power systems, hydrogen, energy storage, high temperature superconductivity, programs to address the power needs of remote and Native American lands, power systems reliability, distributed power, and electricity restructuring. The technologies advanced under these programs will be the building blocks of cleaner, more flexible energy systems of the future.

In its 1997 review of the national energy R&D portfolio, the President's Committee of Advisors on Science and Technology (PCAST) recommended the expansion of a number of national energy R&D programs—renewable energy programs being among the highest priorities for increased funding. The Committee noted that renewable energy technologies provide multiple benefits, including air emission reductions and reduced dependence on imported oil. Crediting DOE with remarkable gains in technology performance and cost reductions, the Committee called for significant expansion of renewable energy R&D programs in order to meet the economic and environmental challenges of the 21st century.

As a follow on to this review, the Committee examined ways to improve the U.S. program of international cooperation on energy R&D. The Committee noted that U.S. participation in international cooperation on energy innovation lowers the cost and increases the pace of energy innovation in the U.S. This participation is warranted by the economic, environmental, and security interests that this country has in how the energy challenges of the 21st century are addressed around the world. Although the Committee found that existing federal activities are well focused and effective, it argued that a significant expansion is needed to address international challenges and opportunities in the energy area.

Budget Overview

In FY 2001, Solar and Renewable Resources Technologies (EERE only) is requesting $409.5 million in the Energy Supply appropriation. The $99.4 million increase in Energy Supply represents a 32 percent increase over the FY 2000 enacted level. This increase addresses electric grid reliability technologies and supports the President's Climate Change Technology Initiative.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Solar and Renewable Resources Technologies					
Solar Energy					
Solar building technology research	3,556	1,968	4,500	2,532	128.7%
Photovoltaic energy systems	70,561	65,912	82,000	16,088	24.4%
Concentrating solar power	16,791	15,168	15,000	-168	-1.1%
Biomass/biofuels energy systems	72,052	70,727	102,441	31,714	44.8%
Wind energy systems	34,076	32,481	50,500	18,019	55.5%
Renewable energy production incentive program	4,000	1,500	4,000	2,500	166.7%
Solar program support	——	4,936	6,500	1,564	31.7%
International solar energy program	6,272	3,819	11,500	7,681	201.1%
National renewable energy laboratory	3,900	1,100	1,900	800	72.7%
Total, Solar Energy	211,208	197,611	278,341	80,730	40.9%
Geothermal	28,150	23,621	27,000	3,379	14.3%
Hydrogen research	21,976	24,587	23,000	-1,587	-6.5%
Hydropower	3,210	4,921	5,000	79	1.6%
Renewable Indian energy resources	4,779	3,864	5,000	1,136	29.4%
Electric energy systems and storage	40,896	37,792	48,000	10,208	27.0%
Federal building/remote power initiative	4,000	——	——	——	——
Program direction	18,100	17,720	18,159	439	2.5%
Departmental energy management	——	——	5,000	5,000	——
Renewable energy research program	47,905	47,100	47,100	——	——
Subtotal, Solar and Renewable Resources Technologies	380,224	357,216	456,600	99,384	27.8%
Use of prior year balances and other adjustments	-48,906	-47,100	-47,100	——	——
Total, Solar and Renewable Resources Technologies	331,318	310,116	409,500	99,384	32.0%

The funding priorities of the Solar and Renewable Resources program include Photovoltaic, Biomass/Biofuels, Wind, and Electric Energy Systems and Storage (including an integrated focus on electric grid reliability) technologies.

- The Photovoltaic program in recent years has achieved numerous technological and cost reduction breakthroughs from which commercial applications are currently being realized. There is great industry interest in maintaining a strong R&D program to take these applications into the marketplace.
- The Biomass/Biofuels Energy Systems program has received similar interest and support from the power generation, manufacturing, and transportation industries because these programs have demonstrated great potential in providing a real alternative energy resource for baseload power production, quality bio-based

products, and alternative transportation fuels that will be cost-competitive with fossil fuels.

- While the cost of producing electricity from wind has decreased dramatically in the last decade, further improvements are needed to close the cost gap between wind and fossil generated energy sources. The Wind program works directly with industry to provide U.S. companies with the technological advantage needed to capture a sizeable share of the multi-billion dollar, rapidly expanding worldwide market for wind energy.

- The transition to competitive, restructured electric markets coupled with growing consumer demand for electricity and constraints in the nation's transmission and distribution systems requires the development of advanced power delivery technologies to ensure the efficient and reliable delivery of electric services to consumers. The portfolio of Electric Energy Systems and Storage programs are focused on the development of these advanced power delivery technologies.

FY 2001 Budget Request

The FY 2001 budget level of $409.5 million supports the following major program activities:

Photovoltaic (PV) — $82.0 million

The Photovoltaic R&D Program maintains a strong scientific base to enable the cost of PV generated electricity to become competitive for large, price-sensitive markets. Most of the program funds fundamental and applied research ($47.3 million), essential for continued progress towards the long-term goals of improved performance and lower costs. A major thrust of these activities is the development of thin film technologies, which have the best chance of attaining the program's long-term goal of $0.06/kWh. The remaining resources fund technology development ($34.7 million), essential for translating the R&D advances in materials, devices, and processes to the manufacture of cost effective products, increasing the reliability of modules and systems so they last longer and perform better throughout their lifetime, and developing new products and deploying them in the field to increase user acceptance.

The Photovoltaic Program supports competitive procurements for cost-shared projects with the U.S. PV industry. These cost-shared projects focus on two areas: 1) developing cost-effective thin film technologies through the Thin Film Partnership Program; and 2) researching manufacturing process technologies to accelerate cost reductions and produce higher performance PV modules through the PVMaT project. Other important industry cost-shared activities include the Million Solar Roofs Initiative, developing PV products that can be integrated into commercial and residential buildings, and partnerships for technology introduction where new PV products are deployed in the field and validated in order to increase their acceptance. In FY 2001, the program will develop a 14 percent stable prototype thin film module; identify at least three new innovative materials for further R&D; and develop standard test procedures for measuring stand-alone and grid-tied system performance.

Concentrating Solar Power — $15.0 million

The Concentrating Solar Power (CSP) Program is working with U.S. industry to develop reliable, distributed CSP systems (i.e., 4,000 hrs. between forced outages) and reduce the

cost of dispatchable systems from the current 10-12¢/kWh to 6-8¢/kWh within five years. Ranging in size from several kiloWatts (dishes) to multi-megaWatt installations (troughs and towers), CSP systems are expected to satisfy substantial domestic and international energy needs, contributing over 5,000 MW by 2010, thereby eliminating 1.3 million tons of carbon annually in the U.S.

In FY 2001, program efforts are directed along three paths. The first is Distributed Power Systems *($4.3M)* – reliable kW-scale solar technologies are being developed that will be used to generate power close to the point of demand. Emphasis in FY 2001 will be on field testing 25 kW utility-scale dish/engine systems, validating automated off-grid operation of a 10 kW remote solar power system on Native American lands, and working with universities and industry to investigate smaller (1-5 kW), mostly solid-state dish-based systems (e.g., high-concentration PV) suitable for residential markets. The second path, Dispatchable Power Systems *($5.2M)*, is focused on reducing the cost of MW-scale solar technologies that can deliver power on demand by means of thermal storage and/or hybridization with fossil fuel. The FY 2001 budget request also emphasizes working with industry to develop advanced solar trough components that will place U.S. firms in a leading position to compete for near-term project opportunities sponsored by the World Bank. Finally, Advanced Components and Systems Research *($5.5M)*, address the higher-risk R&D efforts that will allow penetration of broader domestic and international markets and achieve costs under 6¢/kWh by 2010. FY 2001 research includes heat-pipe receiver testing, hybrid solar/gas (natural gas or hydrogen) system research, structural facet design, high-temperature components, and advanced optical materials.

Biomass/Biofuels Energy Systems - Power Systems/Transportation — $102.4 million

The Biomass/Biofuels program's goal is to develop cost-competitive technologies that: convert biomass resources into electric power production (BioPower $48.0 million) and convert biomass to liquid transportation fuels, mainly ethanol (Biofuels $54.4 million). Benefits of biomass/biofuels technology are: 1) it is a low-cost renewable baseload electric generation and gasoline alternative; 2) it will create jobs in rural areas through the production of dedicated biomass feedstocks; 3) it reduces greenhouse gas emissions, as carbon released into the atmosphere is offset by carbon consumption during the biomass resource growing cycle; and 4) they promote the commercial use of agricultural and forest residues.

The President's FY 2001 budget proposal includes a new initiative in research and development in bio-based technologies, which convert crops, trees, and other "biomass" into a vast array of fuels and products. Biobased industries use agricultural, forest, and aquatic resources to make an array of commercial products including fuels, electricity, chemicals, adhesives, lubricants, and building materials. The initiative supports the President's August 1999 Executive Order 13134 and Memorandum on Promoting Biobased Products and Bioenergy, aimed at tripling the use of biobased products and bioenergy by 2010 in the United States.

The goal of the BioPower Program is to increase the viability of biopower technologies and thereby achieve the addition of 3,000 MW of new biomass power capacity in the U.S. by 2010. The BioPower program is focused on three major energy technology areas of development: 1) co-firing biomass with fossil fuels such as coal and natural gas; 2) small modular biopower systems; and 3) advanced biomass gasification. In FY 2001, the

BioPower Program will complete a second commercial scale co-firing test for switchgrass at the Iowa project, conduct prototype validation of several small modular biomass systems, and finish the testing and integration of a biomass gasification system with a combustion turbine at the Vermont project. The BioPower Program will also initiate modeling of advanced gasification processes to reduce the development costs of biopower technologies and examine the feasibility of gasification-based co-firing under the Co-firing with Coal Initiative. To take advantage of additional feedstock, an Agriculture Residues to Energy program will also be initiated to validate the feasibility of the conversion of animal wastes into power. A Carbon Savings Initiative will be established to increase the net energy output of biopower systems per unit of carbon used.

The Biofuels program intends to: develop and demonstrate technologies capable of producing ethanol that will, by 2010, have an average gross production cost of $1.02 per gallon in the U.S.; develop crop systems capable of producing fuels, chemicals, and electricity; and explore opportunities to produce renewable fuels for heavy vehicles by supporting biodiesel production activities.

A total of $17.5 million in this program is included to support activities of the Integrated Bioenergy Initiative. High priority technologies and processes will be identified through an industry vision and roadmapping process, in conjunction with integrated analysis. A competitive solicitation will be used to implement the priority-integrated activities, achieving the goal of a three-fold increase by 2010.

Wind — $50.5 million

In FY 2001, the Wind Program will support the new Wind Powering America Initiative, which will accelerate the use of wind energy in the U.S., with the goal of supplying five percent of the nation's electricity needs from wind by 2020. The program will: launch a regional field verification program for competitively selected projects that address unique siting, regulatory, electric power systems and marketing issues in key regions for wind power development in the U.S.; complete prototype testing of the Next Generation Turbine, Small Wind Turbine, and Cold Weather Turbine projects; and accelerate concept development activities and prototype component testing under the Wind Partnerships for Advanced Component Technologies (WindPACT) project.

Solar Program Support — $6.5 million

Solar Program Support consists of Electricity Restructuring and Competitive Solicitation. The Electricity Restructuring program provides technical assistance to state officials and others about utility restructuring policies and regulations, and on the costs and benefits regarding the development and deployment of renewable and energy efficient technologies and programs. The Competitive Solicitation program is designed to conduct competitively-awarded, geographically-diverse renewable energy and renewable hybrid technology field validations in remote locations such as Native American lands and in locations distributed along the electric grid.

In FY 2001, the Electricity Restructuring program will support analysis of lessons learned in developing and deploying renewable and energy efficient technologies in restructured utility markets. The program will also provide technical assistance to state officials to ensure they have the most recent information on the impacts of restructuring on renewable and energy efficient technologies. The program will also evaluate the transferability of

utility restructuring concepts to evolving electric markets in other countries, thereby facilitating the use of advanced U.S. energy technologies in those countries. The Competitive Solicitation Program will select the initial round of renewable energy projects to be funded in FY 2001 intended to provide essential operational performance and reliability data on various clean renewable technology applications that will benefit remote and/or economically challenged regions of the nation.

International Renewable Energy Program — $11.5 million

The International Renewable Energy Program encourages the acceptance and use of U.S. renewable energy technologies by developed, developing, and transitional countries in support of U.S. national interests and policies.

Activities will consider: U.S. strategic interests and policies; the DOE mission; leveraged funding; national, regional, or global impacts; potential for replication; commitment from other-country partners; likely impact on U.S. market position; and other relevant factors. Programs focus on three areas: 1) emerging global environmental and energy issues; 2) market and trade development; and 3) energy and environmental security. Emerging global environmental issues, such as climate change, will be addressed through the U.S. Initiative on Joint Implementation (USIJI).

In FY 2001, the program will be expanded through the International Clean Energy Initiative ($19.0 million), which focuses on accelerating the transfer of U.S. renewable energy technologies. The program will assess the renewable resources in targeted countries, identify their optimal mix of renewable technologies, integrate renewable energy programs into national energy plans, stimulate feasibility studies and pilot projects of promising technologies. It will also bring the U.S. private sector and public and private financing sources into the development of bankable projects. The initiative will help counter the financial support some European countries and Japan are giving to their renewable energy industries to expand their shares of the growing international renewable energy market. The initiative is based on recommendations in the report, *"Powerful Partnerships; the Federal Role in International Cooperation on Energy Innovation,"* issued in June 1999 by the President's Committee of Advisors on Science and Technology.

Geothermal — $27.0 million

Electric power from geothermal resources has few environmental impacts and the highest reliability of base-load power from any source. Geothermal R&D efforts focus on: 1) locating and confirming undiscovered geothermal reservoirs; 2) reducing exploration and production drilling costs in hard rock environments; 3) developing advanced techniques for managing geothermal energy production; 4) enhancing the efficiency and reliability of converting geothermal heat into electricity; and 5) reducing operating and maintenance costs at existing and planned geothermal facilities. This program contributes to the goal of a life-cycle cost of producing electricity at 3-5¢/kWh by 2007 and will yield substantial increases in the amount of geothermal energy that can be economically recovered.

In FY 2001, the Geothermal Program will initiate a new program, GeoPowering the West ($2.0 million), to capitalize on the abundant geothermal resources found in 19 western states, including Alaska and Hawaii. The initiative will increase the use of geothermal for electricity production, through identification and development of new sites, expansion of existing reservoirs, strengthening technology development efforts, and tapping resources

near communities for small-scale distributed power. In addition, GeoPowering the West will foster the use of lower temperature resources that are broadly available across the West to supply heat energy for residences, commercial establishments, and industrial applications.

Hydrogen Research and Development — $23.0 million

The Hydrogen program works with industry and universities to develop mid and long-term integrated hydrogen systems for power generation and transportation applications. The use of hydrogen as an energy source promises enormous environmental benefits as a near-zero emission fuel. In FY 2001, the Hydrogen program will conduct R&D to install and operate two units to validate several processes for the production of hydrogen. In addition, the program will continue R&D and field validation of proton exchange membrane (PEM) fuel cells including: a diesel reformat fueled electric generation system for use in an arctic environment; a wind/reversible hydrogen generation and storage fuel cell system; and technologies for fueling hydrogen vehicles.

Hydropower — $5.0 million

This program supports the development of advanced turbine technology to allow the nation to maximize the use of its existing hydropower resources, while minimizing its adverse environmental impacts. Preliminary designs for advanced environmentally-friendly hydropower turbines have been completed. In FY 2001, the program will complete proof-of-concept testing and experiments on an advanced turbine conceptual design to establish biologically based performance criteria for designing a prototype advanced turbine.

Renewable Indian Energy Resources — $5.0 million

The Tribal Energy program is a new effort to enable American Indian Tribal Governments and their entities to gain expertise in energy planning activities. This program will devise energy related activities for the tribes through a comprehensive program that will direct, coordinate, and implement tribal energy efficiency efforts with environmentally-sound power generation. This program will work in conjunction with Native American efforts in the Competitive Solicitation Program.

Electric Energy Systems and Storage — $48.0 million

This area consists of four programs: Transmission Reliability, Distributed Power (contained within the Transmission Reliability line item), Energy Storage, and High Temperature Superconductivity. These programs ensure the efficient and reliable delivery of electric services in competitive, restructured electric markets. Growing consumer demand for electricity is placing increased stress on the nations's transmission and distribution systems. Overcoming regulatory, technical, and institutional barriers to distributed power will relieve stress on the nation's electric transmission systems. The development of lower cost, high performance power electronic controllers with energy storage systems as part of the transition to real-time systems control will provide improved power quality and additional operational capacity within the existing transmission and distribution infrastructure. The development of high temperature superconducting power equipment will significantly reduce losses in generation, delivery, and end-use of electricity and will relieve power delivery system constraints, particularly in urban areas, with very high capacity transmission and distribution cables.

Program Direction — $18.2 million

Funding supports 121 FTEs at both headquarters and the field *(Salary and Benefits - $13.1 million, Travel - $0.5 million, Support Services for all Solar and Renewable Energy programs - $2.6, and Other Related Expenses - $2.0 million).* This funding includes a total of $2.8 million for staffing and operating the Golden Field Office.

Departmental Energy Management Program — $5.0 million

A new program will be established to reduce energy and water consumption, improve energy efficiency, and reduce utility costs throughout the Department's facilities and operations. This will be accomplished through energy savings performance (ESPC) contracts and utility financed projects. In FY 2001: 20 orders for ESPCs at Departmental sites will be initiated; energy consumption in DOE's buildings will be reduced by 38% as compared to FY 1985 energy use per square foot; DOE's office buildings will be evaluated with metered data for Energy Star labels; and metering plans for all remaining DOE office buildings will be developed.

Highlights of Program Changes ($ in millions)

Photovoltaic (PV) *(FY 2000 $65.9; FY 2001 $82.0)* **+$16.1**

- Fundamental Research will increase basic research on breakthrough, non-conventional PV technologies aimed at dramatic cost reductions, and begin new research on ultra high efficiency, high performance large area thin films and multi-junction concentrator cells. *(FY 2000 $11.9; FY 2001 $20.3)* +$8.4
- Thin Film Partnership Program will increase to begin new cost-shared industry contracts to develop the next generation thin film technologies. *(FY 2000 $17.0; FY 2001 $19.0)* +$2.0
- Manufacturing R&D will increase to begin new cost-shared industry contracts for more cost effective manufacturing. (*FY 2000 $10.0; FY 2001 $11.0)* +$1.0
- Systems engineering and reliability decreases but will maintain viable module and system reliability program. *(FY 2000 $13.5; FY 2001 $13.2)* -$0.3
- Building integrated R&D decreases, but maintains efforts to develop PV integrated design concepts to expand use of PV in residential and commercial buildings. *(FY 2000 $1.7; FY 2001 $1.5)* -$0.2
- Partnerships for Technology Introduction decreases due to reduced management costs for the TEAM-UP project. *(FY 2000 $2.3; FY 2001 $2.0)* -$0.3
- The Million Solar Roofs Initiative increases to facilitate the expanded deployment of solar systems throughout the U.S. *(FY 2000 $1.5; FY 2001 $3.0)* +$1.5
- International Clean Energy Initiative is a new activity to accelerate the RD&D of PV technology to developing countries, to dramatically increase PV's global energy contribution. *(FY 2000 $0.0; FY 2001 $4.0)* +$4.0

Biomass/Biofuels *(FY 2000 $70.7; FY 2001 $102.4)* **+$31.7**

- Thermochemical Conversion (Biomass) activities will expand to initiate a Carbon Savings Initiative and model advanced gasification processes. *(FY 2000 $1.7; FY 2001 $5.0)* +$3.3

- Systems Development (Biomass) activities increase to initiate an Agricultural Residues-to-Energy program and support projects requiring higher capital investment such as gasification-based co-firing. *(FY 2000 $23.0; FY 2001 $26.4)* +$3.4

- Ethanol Production (Biofuels) will support the shakedown and testing of an advanced pretreatment reactor to improve enzyme and fermentation operations. *(FY 2000 $30.1; FY 2001 $38.4)* +$8.3

- The Biodiesel program will conduct additional research to improve biodiesel technology and lower production costs. *(FY 2000 $0.8; FY 2001 $1.0)* +$0.2

- The Feedstock Production program will fund scale up research and mechanization research for the production of ethanol and co-products. *(FY 2000 $6.1; FY 2001 $8.5)* +$2.4

- The Regional Biomass Energy Program will use existing infrastructure to deploy biomass technologies through cost-shared grants and activities with state energy offices, and federal and regional organizations. *(FY 2000 $3.0; FY 2001 $5.1)* +$2.1

- Initiate the Integrated Bioenergy Technology Research and Technology Initiative to conduct analysis, laboratory research, and technology development for the co-production of power, fuels, and quality bio-based products from diverse bioenergy feedstocks. *(FY 2000 $6.0; FY 2001 $18.0)* +$12.0

Wind *(FY 2000 $32.5; FY 2001 $50.5)* **+$18.0**

- In Applied Research, innovative technology concepts will be developed through partnerships with competitively selected industry members under the Wind Partnerships for Advanced Component Technologies (WindPACT) program. *(FY 2000 $13.5; FY 2001 $15.0)* +$1.5

- In Turbine Research, Next Generation Turbine projects will enter the engineering and manufacturing development prototype fabrication phase. Studies will be undertaken to determine if multi-megaWatt wind turbine technology being developed in Europe holds the potential for significantly improving cost effectiveness in the U.S. *(FY 2000 $12.5; FY 2001 $14.5)* +$2.0

- In Cooperative Research and Testing, several field verification projects will be competitively selected under Hybrid Systems for Village Power and Regional Field Verification. Wind Powering America will be initiated to catalyze wind development in the United States. A Wind Monitoring Network will be initiated to document performance of several new wind power plants in the United States. *(FY 2000 $6.5; FY 2001 $21.0)* +$14.5

Solar Program Support *(FY 2000 $4.9; FY 2001 $6.5)* **+$1.6**

- Electricity restructuring will evaluate the transferability of utility restructuring concepts to evolving electric markets in other countries, thereby facilitating the use of advanced U.S. energy technologies in those countries. *(FY 2000 $1.0; FY 2001 $2.5)* +$1.5

- Following a year of feasibility studies, the FY 2001 Competitive Solicitation Program will initiate its field validation phase for geographically and

technologically diverse applications of renewable and renewable/hybrid power generation systems in remote and/or economically challenged regions. *(FY 2000 $1.0; FY 2001 $4.0)* +$3.0

- Distributed Power will be funded under the Electric Energy Systems and Storage Transmission Reliability program. *(FY 2000 $2.9; FY 2001 $0.0)* *-$2.9*

International Solar Energy Program *(FY 2000 $3.8; FY 2001 $11.5)* **+$7.7**

- Expand activities to use renewable energy technologies to address the growing global concern for climate change and achieve more meaningful participation by developing countries in reducing greenhouse gas emissions. *(FY 2000, $3.8; FY 2001, $6.0)* *+2.2*

- The International Clean Energy Initiative will focus on energy modeling, resource data development, and accelerating the transfer of U.S. renewable technologies in targeted countries. The initiative will counter the efforts by some European countries and Japan to subsidize the expansion of the international market share of their renewable industries. It will establish long-term relationships between U.S. laboratories and their foreign counterparts. The initiative implements the recommendations of the PCAST report. *(FY 2000 $0.0; FY 2001, $5.5)* +$5.5

Geothermal *(FY 2000 $23.6; FY 2001 $27.0)* **+$3.4**

- Several competitively selected small-scale field verification projects will be initiated to better understand the performance characteristics and economic benefits of smaller geothermal plants. Enhanced Geothermal Systems technology will focus on innovative engineering techniques to expand existing geothermal reservoirs or create new reservoirs. The new initiative, GeoPowering the West, will help expand the use of a clean source of electricity and heat for the American west. The initiative will increase public awareness of geothermal's potential, educate communities, and provide technical support. *(FY 2000 $23.6; FY 2001 $27.0)* +$3.4

Electric Systems and Storage *(FY 2000 $37.8; FY 2001 $48.0)* **+$10.2**

- Transmission Reliability will allow the initiation of critical R&D for real-time systems control development, such as advanced power electronic controls, which are needed to enable the reliable delivery of electric service by the nation's transmission and distribution systems. *(FY 2000 $3.0; FY 2001 $11.0)* +$8.0

- The High Temperature Superconductivity program will emphasize strategic research, providing the fundamental knowledge base for advances in this program. *(FY 2000 $31.4; FY 2001 $32.0)* +$0.6

- Energy Storage will initiate the transmission power quality study and explore advanced storage technology concepts. *(FY 2000 $3.4; FY 2001 $5.0)* +$1.6

Nuclear Energy

Mission

The programs of the Office of Nuclear Energy, Science and Technology (NE) promote secure, competitive, and environmentally responsible nuclear technologies that serve the present and future needs of the United States.

Because of our nation's reliance on nuclear energy, the Department of Energy invests in services, products, and technologies essential to the future. NE's important role includes:

- Promoting research and development to advance application of nuclear technologies for energy security, economic prosperity and quality of life.
- Enhancing the nation's nuclear science, technology, and education infrastructure for the future.
- Managing key federal facilities and legacy nuclear materials.

Program Overview

The Office of Nuclear Energy, Science & Technology (NE) maintains the federal government's core expertise in nuclear science and technology. Through its unique research and development infrastructure, the Department strives to maintain nuclear energy as a reliable, economical, and environmentally-safe source of energy for the next century. The following programs support NE's three principal objectives.

The Nuclear Energy Research Initiative (NERI) program funds investigator-initiated research and development at universities, national laboratories, and industry to advance nuclear power technology. NERI research and development focuses on proliferation-resistant reactor and fuel technologies, high performance/efficient reactor technology, advanced nuclear fuels, and new technologies for the minimization and management of nuclear waste. In FY 2001, NERI research will be coordinated with the Long-Term Nonproliferation Program for Russia, the proliferation-resistant reactor technology component will be co-managed with the Office of Nonproliferation and National Security.

In FY 2001, the Department proposes to launch a new initiative within NERI, the International Clean Energy Initiative/International Nuclear Energy Research Initiative (I-NERI), to provide for competitive world-wide research and development of new technologies to address the key issues affecting the future of nuclear energy, in particular, the economics of nuclear power plants, safety, proliferation, and waste management issues.

The Nuclear Energy Plant Optimization (NEPO) program develops key technologies that can help ensure the long-term reliability and efficiency of our nation's existing nuclear power plants. Today, with the trend moving toward consolidation of ownership of nuclear plants, and more and more plants proceeding with relicensing, it is clear that those plants that are cost-effective, safe, and reliable to operate, will continue to operate for decades to come. NEPO is conducted in cost-shared cooperation with the nuclear industry.

The University Reactor Fuel Assistance and Support program supports the operation and upgrade of university research reactors, provides fellowships and scholarships to outstanding students, and provides nuclear engineering research grants. The program helps maintain domestic capabilities to conduct research and the critical infrastructure necessary

to attract, educate, and train the next generation of scientists and engineers with expertise in nuclear energy technologies.

The Advanced Radioisotope Power Systems program supports the development, demonstration, testing, and delivery of power systems to the National Aeronautics and Space Administration (NASA) and other federal agencies. Previous NASA missions that have used DOE-built power systems include: the Apollo lunar scientific packages, Pioneer, Viking, Voyager, Galileo, Ulysses, Mars Pathfinder, and Cassini.

The Isotope Support program provides a reliable supply of stable and radioactive isotopes used in medicine, industry, and research. In FY 2001, the program will continue the Advanced Nuclear Medicine Initiative, inaugurated in FY 2000, to apply the Department's expertise to advance the state of U.S. medical research, diagnosis, and treatment. DOE has also refocused the program to sell or lease its facilities to the private sector, where possible.

The Test Reactor Area (TRA) Landlord program provides reliable support for activities taking place at the Test Reactor Area in Idaho which includes, naval reactor fuel and core component testing, and production of isotopes for medicine and industry. The program funds operations, maintenance, and upgrade activities for site common facilities and utilities. The program ensures environmental compliance at TRA, including identification of legacy waste and mitigation in accordance with state regulations and DOE agreements with the State of Idaho.

The Fast Flux Test Facility (FFTF), located at the Hanford Site in Washington, is a government-owned, 400 megawatt, sodium-cooled reactor that operated from 1982 to 1992, providing a materials testing facility for nuclear fusion and fission programs. In April 1992, the FFTF was placed on hot-standby. Pending a decision on its future, expected in mid-FY 2001, the Department continues to provide for surveillance and maintenance of the reactor.

The activities of the Termination Costs program are focused on Experimental Breeder Reactor-II (EBR-II) shutdown and deactivation, treatment and disposition of sodium coolant from EBR-II and the Fermi reactor, and treatment of sodium-bonded spent nuclear fuel. The program also supports maintenance of the Argonne National Laboratory-West nuclear infrastructure. The project to demonstrate electrometallurgical technology by treating 125 EBR-II spent fuel and blanket assemblies has been completed. During FY 2000, the Department is evaluating the suitability of the electrometallurgical technology for full-scale treatment of the remaining EBR-II spent fuel assemblies.

Uranium Programs support activities related to the Department's former uranium enrichment program that were not transferred to the United States Enrichment Corporation (USEC), including management of the Department's inventory of 700,000 metric tons of depleted uranium hexafluoride stored in Ohio, Kentucky, and Tennessee. At the gaseous diffusion plants, Uranium Programs is responsible for the maintenance of numerous contracts, legal expenses, and payment of the post-retirement life and medical costs for retired contractor personnel.

Budget Overview

The FY 2001 budget request for NE programs is $306.1 million, $21.0 million above the FY 2000 funding level. The request proposes an increase in the Fast Flux Test Facility program to maintain the facility in full compliance with applicable federal and state health, safety, and environmental regulations and to begin implementation of the Record of Decision on the future of the facility. An increase for Uranium Programs reflects $12.0 million from the Treasury Fund maintained for uranium disposition funds from USEC to support depleted uranium hexafluoride conversion. The FY 2001 request also proposes an increase in funding for the NERI program as the Department initiates an International Nuclear Energy Research Initiative to promote foreign collaborative research focused on advanced technologies to improve the cost, safety, waste management, and proliferation resistance of advanced nuclear energy systems through specific cost-shared arrangements with each participating country. A decrease in Termination Costs reflects sodium processing activities nearing completion. It also reflects placing the Fuel Conditioning Facility and the Hot Fuels Examination Facility into limited production service for disposition of DOE sodium-bonded spent fuels in accordance with the Environmental Impact Statement's Record of Decision.

FY 2001 Budget Request

The FY 2001 budget level of 306.1 million supports the following::

Nuclear Energy Research and Development – $92.2 million

Advanced Radioisotope Power Systems – $31.2 million.

The FY 2001 request includes funding to maintain the program and facility infrastructure to continue development of a small radioisotope thermoelectric generator (RTG) for anticipated use on NASA's Europa Orbiter and Pluto/Kuiper Express missions scheduled for launch in 2003 and 2004, respectively. In early FY 2001, the final design will be completed and

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Nuclear Energy					
Nuclear energy research and development					
Advanced radioisotope power system	36,841	34,141	31,200	-2,941	-8.6%
Test reactor area landlord	6,766	8,903	9,000	97	1.1%
University reactor fuel assistance and support	11,000	12,000	12,000	——	——
Nuclear energy plant optimization	——	4,976	5,000	24	0.5%
Nuclear energy research initiative	18,496	22,392	35,000	12,608	56.3%
Civilian research and development	4,000	8,956	——	-8,956	-100.0%
Total, Nuclear energy research & development	77,103	91,368	92,200	832	0.9%
Fast flux test facility	30,000	28,000	44,010	16,010	57.2%
Termination costs	84,470	78,775	74,000	-4,775	-6.1%
Uranium programs	37,210	41,945	53,400	11,455	27.3%
Isotope support	21,500	20,455	17,215	-3,240	-15.8%
Program direction	21,242	24,700	27,620	2,920	11.8%
Subtotal, Nuclear Energy	271,525	285,243	308,445	23,202	8.1%
Use of prior year balances & other adjustments	-5,475	-170	-2,352	-2,182	-1,283.5%
Total, Nuclear Energy	266,050	285,073	306,093	21,020	7.4%

fabrication initiated. The program would also continue to develop new, non-mission specific technologies that could be used to reduce weight, and cover a range of power levels required to support and meet the more stringent performance requirements of future space and national security missions. The request would also maintain the option to establish a domestic supply of Pu-238 required to produce these systems and for an assessment of special purpose fission technology for potential use in future space systems. In early FY 2001, full-scale operations will be initiated to recover Pu-238 from scrap and waste for reuse in power systems for ongoing missions.

Test Reactor Area (TRA) Landlord – $9.0 million

The FY 2001 request would allow TRA Landlord activities to continue at the same level. In FY 2001, the construction and general plant projects program would: 1) continue the final construction phases of the TRA Fire and Life Safety Upgrade construction project on schedule; 2) complete Title II design and begin the construction phase of the TRA Electric Utility Upgrade construction project; and 3) install a new potable water well and distribution system to meet new mandatory drinking water standards.

University Reactor Fuel Assistance and Support – $12.0 million

The FY 2001 request would continue to support the Nuclear Engineering Education Research program to stimulate innovative research at U.S. universities and continue the reactor upgrade program to improve the operation and maintenance of U.S. university nuclear research reactors. NE plans to continue support for educational and research grants; supply fresh fuel to and transport spent fuel from university research reactors; fund reactor equipment upgrades; and continue the conversion of university reactor fuel cores from highly-enriched uranium to low-enriched uranium.

Nuclear Energy Plant Optimization (NEPO) – $5.0 million

NEPO will continue to address in FY 2001 the challenges associated with the long-term operation of existing nuclear power plants. Funds provided by DOE will be matched by industry to conduct peer-reviewed R&D to: manage the long-term effects of component aging; improve nuclear power plant capacity factors; and optimize through efficiency and productivity improvements. The activities funded under NEPO will be closely coordinated with the Nuclear Regulatory Commission and based on critical R&D.

Nuclear Energy Research Initiative (NERI) – $35.0 million

The FY 2001 request continues multi-year activities and issues approximately 15 new awards. In FY 2001, the Department will also initiate an International Clean Energy Initiative/International Nuclear Energy Research Initiative (I-NERI) to promote foreign collaborative research on advanced technologies. DOE plans to initiate 12-13 new cooperative projects with foreign research institutions. I-NERI would leverage the Department's research funds with other nations involved in nuclear research, development, and deployment of new technologies ($7.0).

Fast Flux Test Facility (FFTF) – $44.0 million

In FY 2001, the Department will decide whether to restart the FFTF to support a range of national nuclear research reactor requirements or to permanently deactivate the facility. The FY 2001 request would fund surveillance and maintenance of the FFTF to keep it in a safe

and environmentally-compliant condition and support the activities required to restart or permanently shutdown the facility.

Termination Costs – $74.0 million

The activities of the Termination Costs program are focused on the shutdown of the Experimental Breeder Reactor-II (EBR-II) in Idaho and deactivation of the EBR-II facilities. The FY 2001 request would:

- maintain the Argonne National Laboratory-West site safety, security, and safeguards infrastructure;
- dispose of DOE sodium-bonded spent nuclear fuel, following the FY 2000 Record of Decision on treatment and management of the fuel;
- continue spent fuel and waste disposition technology activities needed to gain regulatory acceptance;
- complete the draining and processing of all stored Fermi and EBR-II sodium in FY 2001; and
- continue repackaging and removal activities for spent nuclear fuel that remains from an earlier fuel burn up development program now stored by a commercial entity.

Uranium Programs – $53.4 million

In FY 2001, $53.4 million is requested to manage Uranium Programs activities, of which $29.5 million will be used to manage the inventory of depleted uranium hexafluoride at the Gaseous Diffusion Plants in Portsmouth, Ohio, Paducah, Kentucky, and the East Tennessee Technology Park in Oak Ridge, Tennessee, principally: $16.6 million for cylinder storage maintenance; $0.9 million for conversion development; and $12.0 million for the initiation of a project to design, build, and operate conversion facilities to treat and convert the material to a more stable form.

Consistent with Public Law 105-204, the Department is proceeding with a project to build and operate conversion facilities to convert the inventory of depleted uranium hexafluoride to a more stable form. In FY 2001, the Department is requesting $12.0 million for the conversion project.

The remaining $23.9 million will be used to support the maintenance of leased and non-leased facilities at DOE's former gaseous diffusion plant sites, clean up PCB spills in the leased areas, defend lawsuits, and pay the post-retirement life and medical costs of retired contractor personnel as well as other pre-existing liabilities. The Department remains responsible for safety documentation and assists the Nuclear Regulatory Commission in preparing reports for the congress.

Isotope Support – $17.2 million

The FY 2001 request includes $2.5 million for the Advanced Nuclear Medicine Initiative to sponsor nuclear medical science using a peer review selection process, initiate a focused program for using alpha particle-emitting isotopes to fight malignant diseases, and establish scholarships and fellowships for nuclear medicine specialists. The program would also produce and distribute stable and radioactive isotopes necessary for medical, industrial, and

research purposes. The FY 2001 request includes $0.5 million to complete construction of a new $14.0 million isotope target irradiation facility at the Los Alamos Neutron Science Center. The request also includes $0.3 million to develop a private partnership that will replace the aged stable isotope production facility at Oak Ridge, Tennessee with a new, less costly production facility. Finally, the request includes $0.9 million to increase the supply of alpha-emitting isotopes to support the expansion of human clinical trials that are showing great promise for cancer therapy.

Program Direction – $27.6 million

The FY 2001 request would support salaries, benefits, travel, and services for 171 headquarters and field personnel providing technical direction to NE programs. The program also supports the activities of the Nuclear Energy Research Advisory Committee.

Highlights of Program Changes ($ in millions)

Advanced Radioisotope Power Systems *(FY 2000 $34.1; FY 2001 $31.2)* **-$2.9**

- Consolidation and streamlining of program and facility infrastructure (primarily at Mound) and reduced technology efforts (-$3.8). Reduced Pu-238 efforts (scrap recovery) (-$1.1).
- Increase for special purpose fission technology assessment (+$2.0).

University Reactor Fuel Assistance and Support *(FY 2000 $12.0; FY 2001 $12.0)* **$0.0**

Increases for radiochemistry allows full funding of continuing projects, reactor upgrade instrumentation at several reactors, and slightly expanded education recruitment programs (+$0.2). Decrease in the number or level of funding for matching grants (-$0.2).

Test Reactor Area Landlord *(FY 2000 $8.9; FY 2001 $9.0)* **+$0.1**

Increase mandatory maintenance, general plant projects, and legacy waste cleanup (+$1.5). Decrease in work scope for the Electrical Utility Upgrade construction project (-$0.4) and the Fire and Life Safety construction project (-$1.0).

Nuclear Energy Research Initiative (NERI) *(FY 2000 $22.4; FY 2001 $35.0)* **+$12.6**

Increase will provide funding to continue multi-year activities and to issue approximately 15 new awards in FY 2001 (+$5.6). The increase will also include an investigator-initiated competitive peer reviewed international component of the Nuclear Energy Research Initiative (+$7.0).

Civilian Research and Development (ATW) *(FY 2000 $9.0; FY 2001 $0.0)* **-$9.0**

No new funds for ATW research are requested for FY 2001. In FY 2000, DOE will complete critical trade studies, evaluate experimental data, and complete the ATW Program Plan.

Fast Flux Test Facility (FFTF) *(FY 2000 $28.0; FY 2001 $44.0)* **+$16.0**

The increase reflects a funding shortfall for FFTF maintenance and surveillance in FY 2000 (+$7.1) and additional funding to support the activities needed to implement the decision to either restart or permanently deactivate the FFTF (+$8.9). The Department has pending, a FY 2000 reprogramming request of $11.7 million for the FFTF to maintain full compliance with applicable regulations, retain the facility's preventive maintenance program, and

conduct a National Environmental Policy Act review to evaluate the Department's nuclear infrastructure, including the issue of FFTF restart or deactivation.

Termination Costs *(FY 2000 $78.8; FY 2001 $74.0)* **-$4.8**

Increase (+$2.4) is needed for facility support, management services, and safeguards and security costs to include a general plant project to upgrade the intrusion detection and assessment systems. A decrease of (-$5.4) reflects sodium processing activities nearing completion and placing the Fuel Conditioning Facility and Hot Fuels Examination Facility into limited production service for disposition of DOE sodium-bonded spent fuels in accordance with the EIS Record of Decisions. A decrease reflects a shift from procurement of equipment in FY 2000 for long-term tests on waste forms, to monitoring these tests in FY 2001 (-$1.8).

Uranium Programs *(FY 2000 $41.9; FY 2001 $53.4)* **+$11.5**

Increases for highly-enriched uranium equipment shutdown (+$4.0); depleted uranium hexafluoride management, conversion, and disposition project (+$6.9); and pre-existing liabilities (+$2.3). The decrease in the maintenance program is a result of a downscope of work activities in the active and inactive facilities (-$1.7).

Isotope Support *(FY 2000 $20.4, FY 2001 $17.2)* **-$3.2**

Increases to support operations and maintenance of reactor and hot cell facilities (+$1.2); increase the supply of alpha emitting isotopes (+$0.9); shut down the calutrons at Oak Ridge and move all business activities and the Isotope Materials Laboratory (+$0.9); design the stable isotope enrichment unit (+$0.3); and invest in product research and process improvements (+$0.5). Decrease construction of the Isotope Production Facility at Los Alamos (-$7.0).

Program Direction *(FY 2000 $24.7; FY 2001 $27.6)* **+$2.9**

Increase for salaries and benefits (+$2.1), support services (+$0.1), and travel and other expenses (+$0.7).

Environment, Safety and Health (non-defense)

Mission

The Office of Environment, Safety and Health (EH) is the Department of Energy's technical resource to promote the protection of the health and safety of its workers, the public, and the environment near its facilities. This is accomplished by continuous improvement in environment, safety, and health programs and by sharing technical resources and information throughout the DOE complex.

The program controls the hazards of DOE activities through the development and implementation of corporate environment policies, standards, and guidance. Since most of DOE is internally regulated for radiation protection and nuclear and worker safety, EH promulgates policy and operating requirements in the form of rules and orders for these functions. Since DOE is externally regulated for compliance with applicable environmental laws issued by other federal agencies, EH serves as the Department's advocate and coordinating point for Departmental positions on emerging environmental regulations and standards. When environmental compliance issues arise within the Department, EH develops environmental policy and guidance to resolve those issues.

Program Overview

The non-defense EH program, funded in the Energy Supply appropriation, consists of Policy, Standards and Guidance, Corporate Programs, and a Program Direction decision unit. The defense EH program funded within the Other Defense Activities appropriation includes Oversight, Health Studies, the Radiation Effects Research Foundation (RERF), Gaseous Diffusion Plants, and a Program Direction decision unit.

The Energy Supply programs of EH are discussed in this section and consist of two functions: Policy, Standards and Guidance; and Corporate Programs, as well as a portion of the total Program Direction request.

The **Policy, Standards and Guidance** activities involve the development and maintenance of current, up-to-date DOE safety and health policies, standards, and guidance while adopting standards that are appropriate for DOE work. DOE regulatory activities include transactional and participatory relationships with other regulators, such as the Nuclear Regulatory Commission and the Environmental Protection Agency, to accommodate their identified interests and jurisdiction, and as appropriate, to advance the DOE environment, safety, and health mission.

Corporate Programs include a range of corporate based functions which address emerging environment, safety, and health vulnerabilities, significant nuclear and industrial hazards, and improved methods for managing or implementing safety programs. Such programs include various Departmental crosscutting activities like the Department of Energy Laboratory Accreditation Program (DOELAP). Other activities included in Corporate Programs are National Environmental Policy Act compliance activities and information management.

The **Program Direction** account includes salaries, benefits, and travel for a portion of the Office of Environment, Safety and Health's federal staff, as well as funding for the Office of Environment, Safety and Health's share of the Working Capital Fund. This fund provides for the costs of services such as office space, telephone service, and supplies. Within the Energy Supply account, $40.0 million is requested. An additional $109.1 million is requested in the Other Defense Activities appropriation detailed in another section.

Budget Overview

The Corporate Programs activities request is $15.7 million in FY 2001, which is equivalent to the FY 2000 level. These Corporate Programs improve worker and nuclear facilities safety and protection of the public and the environment through the centralized management of DOE-wide programs. These activities span the design, construction, operation, maintenance, decontamination and decommissioning, and cleanup of nuclear weapons

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Environment, Safety & Health					
Office of environment, safety and Health (non-defense)	30,014	19,650	20,002	352	1.8%
Program direction	17,743	18,393	19,998	1,605	8.7%
Subtotal, Environment, Safety & Health	47,757	38,043	40,000	1,957	5.1%
Use of prior year balances & other adjustments	-2,970	——	——	——	——
Total, Environment, Safety & Health	44,787	38,043	40,000	1,957	5.1%

production and research-related facilities, construction safety, and work planning activities.

The FY 2001 request provides $20.0 million for Program Direction, which is $1.0 million or five percent more than the FY 2000 comparable amount. The FY 2001 request provides for salaries, benefits, and travel for 122 full-time-equivalents (FTEs). The increase is due to general pay increases, promotions, within-grade increases, and increases within the Working Capital Fund for items such as rent, supplies, and other services. The FY 2001 request includes $5.6 million for the Working Capital Fund which covers all of EH.

Highlights of Program Changes ($ in millions)

Program Direction *(FY 2000 $18.4; FY 2001 $20.0)* **+$1.6**

Salaries, benefits, and Working Capital Fund increase as a result of the pay raise adjustment and increased costs of rents, supplies, and other services.

Technical Information Management

Mission

The **Technical Information Management Program (TIM)** collects, manages, and disseminates scientific and technical information resulting from Department of Energy research and development and environmental programs. The program also provides worldwide energy scientific and technical information to DOE, U.S. industry, academia, and the public. The FY 2001 budget request is $9.3 million, which is $0.7 million above the FY 2000 level.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Technical Information Management					
Program support	1,586	1,600	1,802	202	12.6%
Program direction	7,250	7,000	7,500	500	7.1%
Subtotal, Technical Information Management	8,836	8,600	9,302	702	8.2%
Use of prior year balances & other adjustments	-250	——	——	——	——
Total, Technical Information Management	8,586	8,600	9,302	702	8.2%

Laboratory R&D results are recorded in report literature or journals. Report literature will be electronically collected and disseminated via the "Information Bridge," which has access to over 50,000 searchable reports. For journal literature, TIM has developed "pubSCIENCE" which provides searchable bibliographic records with links to full-text journal articles at publishers' web sites. Electronic subscription arrangements with publishers are also established. In FY 2000, an increase of $0.2 million is provided to support the DOE R&D tracking system. Program direction will fund 87 FTEs, an increase of four FTEs. Program direction funding increases by $0.5 million.

Science

Mission

The mission of the **Office of Science** (SC) is to conduct basic research in energy related areas. This research provides the science that drives technological development within the Department; explores the health and environmental consequences of energy production, development, and use; provides a science base for fusion as a potential energy source of the future; and conducts fundamental research in energy, matter, and the basic forces of nature. Research in these missions is conducted by both DOE national laboratories and university researchers, and includes operation, maintenance, and construction of new scientific facilities.

Program Overview

Office of Science research programs are funded in the Science Appropriation. The Technical Information Management program, which collects and disseminates science and technology information resulting from DOE's multi-billion dollar R&D program, is funded in the Energy Supply Appropriation. The basic research and technology programs of the Department are working together to improve their efforts on important energy problems.

Office of Science research is generally of a long-term, fundamental nature including:

- basic research in natural sciences and engineering, for new and improved energy technologies, to understand and mitigate environmental impacts of energy technologies;
- identifying, understanding, and anticipating the long-term health and environmental consequences of energy production, development, and use;
- advanced computing research, including operation of supercomputers, networks, and related facilities for analysis, modeling, simulation, and prediction of complex phenomena related to DOE missions;
- laboratory infrastructure management for world class, state-of-the-art scientific facilities; and
- evaluation of DOE research programs and projects, and partnerships with the private sector leading to innovative applications relevant to the nation's energy sector.

The Science budget also funds the federal staff who manage these programs and the Chicago, Oakland, and Oak Ridge Operations Offices. In addition, the Office of Science designs, builds, and operates world-class, state-of-the-art scientific facilities available for use by merit-reviewed researchers from DOE national laboratories, universities, and the private sector.

The **High Energy and Nuclear Physics** programs have the lead federal responsibility for support, and fund approximately 90 percent of all federal research in their respective areas. They provide insight into the nature of energy and matter, the basic forces which govern all

processes in nature, and the structure and interactions of atomic nuclei. The programs support large, world class scientific facilities for physics research. Research is performed primarily at DOE national laboratories using large particle accelerators and detectors. The research is conducted by about 3,000 researchers and about 2,000 graduate students from more than 100 universities and the national laboratories.

The goal of **High Energy Physics** is to provide new insights into the nature of energy and matter and to better understand the natural world. The research program is dependent upon DOE's state-of-the-art particle accelerators, fixed target and colliding beam facilities, and particle detectors. The major facilities are the Tevatron at Fermilab in Illinois (with both fixed and colliding beam facilities) and the B-Factory and its detectors at the Stanford Linear Accelerator Center (SLAC) in California. In December 1997 the Department of Energy and the National Science Foundation signed an agreement with the European Center for Nuclear Research (CERN) concerning U.S. contributions to the Large Hadron Collider (LHC) accelerator and detectors. The U.S. will be responsible for designing and fabricating particular subsystems of the accelerator and two detectors. The program also supports the technology base required to develop the advanced concepts and technologies for new High Energy Physics facilities.

The **Nuclear Physics** program conducts research activities to understand the structure of atomic nuclei and the fundamental forces required to hold nuclei together. The experimental research program supports particle accelerators and several other research facilities located at universities and the national laboratories. A Nuclear Theory program complements experimental activities. The program supports the operation and maintenance of facilities and the construction of new facilities. Construction of the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory in New York, a colliding beam accelerator which creates conditions similar to those of the expanding universe moments after the Big Bang, was completed in FY 1999, and began its first full year of operations and research in FY 2000.

Biological and Environmental Research (BER) seeks to understand and mitigate the adverse health and environmental consequences of energy production, development, and use. Environmental activities focus on the consequences of energy production and use, risk assessment, transport of pollutants, environmental restoration, and bioremediation technologies. They also include substantial research supporting the U.S. Global Change Research Program (USGCRP) in which the Department continues its commitment to important scientific inquiry into the basic understanding of global climate and the carbon cycle, including carbon management and sequestration. The Climate Change Technology Initiative (CCTI) sequences the genomes of hydrogen and methane producing microbes or microbes that could be used to sequester carbon dioxide, and studies the processes of natural carbon sequestration (see table). Health related programs include understanding and mitigating the potential health effects of energy development and waste cleanup; cellular, molecular, and structural biology for understanding energy related health effects and for biotechnology research; the Human Genome Program; and diagnostic and therapeutic medical applications of nuclear and other related technologies.

The **Basic Energy Sciences (BES)** program seeks to maintain U.S. world leadership in areas of natural sciences and engineering that are relevant to energy production, conversion and efficiency, and the mitigation of adverse impacts from energy production and use. BES

supports high quality research in order to: provide a basis for new and improved energy technologies; support world class scientific user facilities; and design and build advanced facilities for future research needs. Several large state-of-the-art scientific facilities located at the national laboratories, used by laboratory, university, and industry researchers, conduct investigations in materials and chemical sciences, engineering and geosciences, and energy biosciences as well as in many other disciplines. The **Climate Change Technology Initiative** (CCTI) provides the knowledge base for the development of advanced technologies to reduce CO_2 emissions (see table). The program also funds the operation and maintenance of these scientific user facilities; capital equipment and construction supports the research at these facilities. Facilities include research reactors, accelerators, x-ray and ultraviolet light sources, a laser facility for combustion research, and other specialized facilities. Construction activity for the Spallation Neutron Source (SNS) continues; it will be a world-class state-of-the-art facility for neutron scattering and related research.

Office of Science
Climate Change Technology Initiative
($ in millions)

Program	FY 2000	FY 2001
Basic Energy Sciences	$20.0	$20.0
Biological and Environmental Research	$13.0	$16.7
Subtotal, Science CCTI	*$33.0*	*$36.7*
SBIR/STTR adjustment	-$0.8	-$0.9
Total, Office of Science CCTI	**$32.2**	**$35.8**

The **Advanced Scientific Computing Research** *(ASCR)* program supports world leadership in areas of scientific computing research relevant to the DOE missions. Research in Mathematical, Information, and Computational Sciences concentrates on advanced computing applications and techniques, and provides high performance computer access to DOE researchers. In addition, this program funds Laboratory Technology Research which supports cost-shared technology research collaborations.

The **Fusion Energy Sciences** program is a key multi-purpose, scientific research effort producing valuable scientific knowledge and technological benefits in the short-term and providing the science base for a fusion energy option in the long-term. It is a component of the nation's long-term energy strategy which recognizes fusion as a potential energy resource. The goal of the program is to "advance plasma science, fusion science, and fusion technology and thereby establish the knowledge base for an economically and environmentally attractive fusion energy source." The program funds several fusion research facilities, and both laboratory and university based experimental and theoretical research teams. In recent years, the program has been restructured to concentrate on the scientific principles involved in fusion rather than on the fusion energy objective. The program also fosters the advancement of plasma science which has applications in other fields of science and near-term industrial uses.

The Office of Science also supports the **Multiprogram Energy Laboratories-Facilities Support** program, which provides funding for the general purpose infrastructure of the five Office of Science multiprogram laboratories and the Oak Ridge Landlord Activities; the *Energy Research Analyses* program, which evaluates Department of Energy research projects; and *Science Program Direction*, which funds Office of Science and field operations staff and science education activities.

Science

Budget Overview

The FY 2001 request for the Office of Science is $3,151.1 million.

The High Energy Physics budget provides $70.0 million for U.S. participation in the **Large Hadron Collider**. DOE will design and fabricate particular subsystems of the accelerator and two large detectors. The total DOE contribution will be $450.0 million over nine years, with much of this going to U.S. laboratories, universities, and industry. High Energy Physics will focus on the utilization of new facilities at Fermilab (Main Injector) and SLAC (B-Factory). The Brookhaven Alternating Gradient Synchrotron (AGS) was transferred to Nuclear Physics at the end of FY 1999. In Nuclear Physics, FY 2001 will be the second full year of operations for the **Relativistic Heavy Ion Collider (RHIC)** and it will have increased running time; the **Thomas Jefferson National Accelerator Facility** will operate at FY 2000 levels, and the **Bates Laboratory** at MIT will begin operation of the BLAST Detector at the end of FY 2001.

In Fusion Energy Sciences, the **National Spherical Torus Experiment (NSTX)** will be in its second full year of operation, and the decontamination and decommissioning of the **Tokamak Fusion Test Reactor (TFTR)** continues; DIII-D, Alcator C-Mod, and the NSTX facilities will continue to operate to address high priority fusion energy science issues.

The budget also maintains operation of scientific user facilities; supports environmental and life science programs, including the **U.S. Global Change Research Program (USGCRP)** and **Human Genome** program; provides increased funding for the **Climate Change Technology Initiative**; and continues construction of the **Spallation Neutron Source**. There is new or enhanced funding for the **Microbial Cell Project**, **Nanoscale Science**, **Robotics and Intelligent Machines**, and **Biomedical Engineering.**

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Science					
High energy physics	682,746	703,843	714,730	10,887	1.5%
Nuclear physics	338,496	355,802	369,890	14,088	4.0%
Biological and environmental research	425,890	434,086	445,260	11,174	2.6%
Basic energy sciences	791,713	779,421	1,015,770	236,349	30.3%
Advance scientific computing research	153,512	127,883	181,970	54,087	42.3%
Energy research analyses	976	991	1,000	9	0.9%
Multiprogram energy labs - facility support	32,244	33,055	33,930	875	2.6%
Fusion energy sciences	220,591	247,759	247,270	-489	-0.2%
Science program direction	134,975	131,711	141,245	9,534	7.2%
Small business innovation research (SBIR)	81,461	———	———	———	———
Subtotal, Science	2,862,604	2,814,551	3,151,065	336,514	12.0%
Use of prior year balances & other adjustments	-21,370	———	———	———	———
Total, Science	2,841,234	2,814,551	3,151,065	336,514	12.0%

High Energy Physics – $714.7 million

The FY 2001 budget request for High Energy Physics (HEP) is $714.7 million, an increase of $10.9 million over FY 2000. The U.S. finalized negotiations for DOE and NSF to participate in CERN **Large Hadron Collider (LHC)** project in December 1997. Funding for the LHC remains at $70.0 million in FY 2001, with funding split between accelerator systems ($17.8), procurement from industry ($18.5) and detectors ($33.7).

The FY 2001 HEP budget is largely driven by the operation of and research at three major facilities: Fermilab, SLAC, and the Brookhaven National Laboratory AGS.

FY 2001 Budget Request

Funding decreases slightly at Fermilab as operation of the **Tevatron,** with the new **Fermi Main Injector,** is brought on-line, and fabrication of upgrades to the two major detectors nears completion; assembly of the **MINOS** Detector continues at $7.0 million in FY 2001; and funding for Muon-Muon Collider R&D, most of which is funded at Fermilab, remains at $8.7 million. Funding increases at the Stanford Linear Accelerator Center (SLAC) primarily for operation of the **B-Factory** with its **BaBar** detector; the SLAC portion of the research on the Next Linear Collider (NLC) increases to $17.5 million in FY 2001, while total R&D on the NLC increases from $17.4 million in FY 2000 to $19.2 million in FY 2001. At Brookhaven National Laboratory HEP funding increases for incremental operation of the **AGS** for high priority HEP experiments; full funding responsibility for the AGS was transferred to Nuclear Physics at the end of FY 1999. Funding for university research decreases by $1.9 million, but is offset by an increase in university equipment of $5.5 million, primarily for fabrication of non-accelerator hardware. Large scale modeling and simulation is funded at $5.0 million. The table below shows on-going construction projects.

High Energy Physics Facilities
($ in millions)

	FY 2000	FY 2001
Fermilab	$235.3	$230.2
Weeks of operation	29	22
Stanford Linear Accelerator (SLAC)	$146.7	$149.3
Weeks of operation	39	36
Alternating Gradient Synchrotron (AGS)	$21.2	$22.6
Weeks of operation	15	17

High Energy Physics Construction
($ in millions)

	TEC	FY 2000	FY 2001
Neutrinos at the Main Injector	$76.2	$22.0	$23.0
Wilson Hall Safety Improvement	$15.6	$4.7	$4.2
SLAC Research Office Building	$7.2	$2.0	$5.2

Nuclear Physics – $369.9 million

The FY 2001 request for Nuclear Physics (NP) is $369.9 million, an increase of $14.1 million over FY 2000. The **Thomas Jefferson National Accelerator Facility (TJNAF)** will continue operation at 4,500 hours, and deliver continuous beam (at differing energies and currents) to all three experimental halls. The **BATES** Accelerator at MIT will continue to operate at 2,000 hours and assembly of the BLAST Detector for BATES will be completed (FY 2001 $1.2). The **Relativistic Heavy Ion Collider (RHIC**) was completed on schedule in FY 1999, and it is scheduled for 4,800 hours of operation in FY 2001. The **Radioactive Ion Beam (RIB)** facility at Oak Ridge continues operation at a level of 2,300 hours. Nuclear Theory is increased to $18.2 million to support modeling and simulation.

Nuclear Physics Facilities
($ in millions)

	FY 2000	FY 2001
Thomas Jefferson National Accelerator Facility	$72.7	$74.7
BATES Accelerator, MIT	$15.4	$17.0
Relativistic Heavy Ion Collider, Brookhaven	$115.8	$119.5
Radioactive Ion Beam, Oak Ridge	$13.2	$14.1

Biological and Environmental Research – $445.3 million

The FY 2001 budget request for Biological and Environmental Research (BER) is $445.3 million, an increase of $11.2 million over FY 2000. Increases in most programs are offset by completion of several congressionally directed projects in FY 2000. The FY 2001 request includes $16.3 million ($12.7 in FY 2000) for the **Climate Change Technology Initiative**, which will sequence microbes for methane/hydrogen production or for carbon sequestration, and to develop a better understanding of natural carbon sequestration processes in terrestrial and ocean systems. A funding increase of $18.3 million in the Life Sciences subprogram supports new facilities critical to structural biology research (+$7.5), and enhanced research in microbial genomics which has exciting potential uses in energy and environmental applications (+$5.5) A new **Microbial Cell Project** (see table) represents a fundamental shift in our approach to biology; research will seek to identify and understand the structures, functions, and interactions of an organism's entire complement of genes and gene products, and to use this information to

Life Sciences Initiative
($ in millions)

	FY 2000	FY 2001
Microbial Cell		
Biological and Environmental Research	—	$10.0
Basic Energy Sciences	—	$2.5
Subtotal, Microbial Cell	—	*$12.5*
Biomedical Engineering		
Biological and Environmental Research	$1.7	$6.7
Total, Life Sciences Initiative	**$1.7**	**$19.2**

address DOE needs in energy use and production, bioremediation, and carbon sequestration (+$9.7). The **Human Genome** has a small increase of $1.4 million in FY 2001 (FY 2000 $88.9), and will complete draft sequencing of human chromosomes 5, 16, and 19 in the summer of 2000, and is scheduled to complete finished sequencing of those chromosomes by October 2001. The **low dose exposure** program *(FY 2000 $18.2; FY 2001 $11.7)* will explore the effects of low dose radiation and chemical exposure on humans to determine safe exposure levels for environmental remediation workers.

The Environmental Processes subprogram *(FY 2000 $127.1; FY 2001 $131.5)* funds the Department's **U.S. Global Change Research Program (USGCRP)** activities; it includes operation of three Atmospheric Radiation Measurement (ARM) sites, 25 AmeriFlux sites (providing measurements on carbon exchange between the atmosphere and terrestrial biosphere), and increased funding for climate modeling and simulation and development of next generation coupled atmospheric-ocean models with a grid size of 200 KM. Environmental Remediation subprogram activities *(FY 2000 $64.9; FY 2001 $63.5)* include continuation of the **Natural and Accelerated Bioremediation Research (NABIR)** program ($19.1) and operation of the **Environmental Molecular Sciences Laboratory (EMSL)** for about 600 users ($27.4). In Medical Applications, **Boron Neutron Capture Therapy (BNCT)** Phase I trials will be completed ($10.8); research on radiopharmeceuticals increases to $24.6 million; and there is an expanded initiative in biomedical engineering (see table) for prevention, diagnosis, and treatment of disease; and a project is funded at $6.7 million to support research to improve health and environmental quality of communities served by DOE facilities at the University of South Carolina School of Public Health. Construction will begin on the Laboratory for Comparative and Functional Genomics *(TEC $13.9; FY 2001 $2.5).*

Basic Energy Sciences – $1,015.8 million

The FY 2001 budget request for Basic Energy Sciences (BES) is $1,015.8 million, an increase of $236.3 million over FY 2000. Most of this increase is attributable to the **Spallation Neutron Source (SNS)** which increases from $117.9 million in FY 2000 to $281.0 million in FY 2001. Funding for the **Climate Change Technology Initiative (CCTI)**, which is funded in all subprograms, remains at $19.5 million. A **Nanoscale Science** initiative (see table) and an initiative in **Robotics and Intelligent Machines** have been enhanced.

Materials research, in addition to enhanced funding of $16.9 million for nanoscale science, provides $8.0 million to begin a jointly funded (with NIH) upgrade to **SPEAR 3** at the Stanford Synchrotron Radiation Laboratory (DOE share of TEC $29.0). The **Experimental Program to Stimulate Competitive Research (EPSCoR)** increases from

Nanoscale Initiative
($ in millions)

	FY 2000	FY 2001
Basic Energy Sciences	$47.0	$83.1
Advanced Scientific Computing Research	$0.7	$0.5
Total, Nanoscale Initiative	**$47.7**	**$83.6**

$6.8 million in FY 2000 to $9.8 million in FY 2001 to support education activities in the EPSCoR states. FY 2001 includes $17.5 million for shutdown and surveillance of the High Flux Beam Reactor (HFBR), the Secretary of Energy announced HFBR's closure in November 1999. Chemical Sciences increases by $16.7 million and supports nanoscale science (+$13.5) and modeling and simulation (+$2.0). Research in Engineering and Geosciences will increase by $3.7 million, mostly for nanoscale science (see table) and robotics and intelligent machines ($2.7), and Energy Biosciences research will increase by $3.0 million over FY 2000 for the microbial cell **(see table)** and plant genome.

Advanced Scientific Computing Research – $182.0 million

The FY 2001 budget request for Advance Scientific Computing Research is $182.0 million, an increase of $54.1 million over FY 2000. The Mathematical, Information and Computational Sciences (MICS) subprogram *(FY 2000 $119.1; FY 2001 $169.7)* includes funding enhancements for graduate fellowships (+$2.0); enabling technology centers to support terascale computing (+$19.2); scientific application pilot projects (+$5.8); advanced networking systems (+$1.5); and collaborative tools and National Collaboratory Pilot Projects (+$8.6). Increases are also provided for the National Energy Research Scientific Computing Center (NERSC) (+$5.8), Advanced Computing Research Facilities (+$2.0), and the Energy Sciences Network (ESnet) (+$4.5). This program also participates in nanoscale science (see table).

The Laboratory Technology Research subprogram *(FY 2000 $8.8; FY 2001 $12.3)* supports increased partnerships in the transfer of high-risk, long-term basic research to applied energy efficiency and utilization technologies. Within the Office of Science, this program takes the lead for leveraging science and technology to advance understanding and to promote U.S. economic competitiveness through cost-shared partnerships with the private sector.

Fusion Energy Sciences – $247.3 million

Fusion Energy Science Facilities
($ in millions)

	FY 2000	FY 2001
Doublet III-D	$54.1	$50.9
Weeks of operation	*14*	*17*
Alcator C-Mod	$18.5	$17.4
Weeks of operation	*18*	*14*
National Spherical Torus Experiment	$28.3	$26.7
Weeks of operation	*14*	*17*

The FY 2001 budget for Fusion Energy Sciences (FES) is $247.3 million, a decrease of $0.5 million from FY 2000. Funding for the **Doublet III-D (DIII-D)** at General Atomics supports three additional weeks of operation. The **Alcator C-Mod** at MIT has four fewer weeks of operation in FY 2001. The **National Spherical Torus Experiment** (NSTX) increases operations in FY 2001. A three-year, $48.0 million, decontamination and decommissioning of the Tokamak Fusion Test Reactor (TFTR) begun in FY 2000 continues *(FY 2000 $13.4; FY 2001 $19.6)*. Theory increases by $3.0 million to support simulation and modeling. General Plasma Science and Inertial Fusion Energy are funded near FY 2000 levels.

Energy Research Analyses – $1.0 million

This program continues at the FY 2000 level of $1.0 million. The program will evaluate the quality and relevance of DOE research projects by independent peer reviews, and will identify additional technical needs. It also supports evaluation of critical DOE planning and policy issues by outside experts such as the National Academy of Sciences.

Multiprogram Energy Laboratories-Facilities Support (MEL-FS) – $33.9 million

The FY 2001 request is $33.9 million. The small increase over FY 2000 is primarily for additional Environment, Safety and Health (ES&H) projects. The base MEL-FS program is funded at $23.2 million *(FY 2000 $21.3)*, and supports the general purpose infrastructure of the Office of Science's five multiprogram national laboratories through line-item construction funding. Funding for the Oak Ridge Landlord declines by $1.0 million as Oak Ridge National Laboratory (ORNL) takes responsibility for the American Museum of Science and Energy.

Program Direction – $141.2 million

The FY 2001 request for Science Program Direction is $141.2 million, an increase of $9.5 million over FY 2000. This program funds federal personnel who staff Office of Science programs. Staffing in FY 2001 is projected at 346 FTEs in headquarters and the field ($51.4). This program will also support 732 FTEs at the Chicago, Oakland, and Oak Ridge Operations Offices ($83.3). Science education activities are increased to $6.5 million.

Highlights of Program Changes ($ in millions)

High Energy Physics *(FY 2000 $703.8; FY 2001 $714.7)* **+$10.9**

- **Fermilab:** Research and Technology increases slightly in FY 2001 (+$0.8); Facilities funds 22 weeks of operations in FY 2001 ($207.0) versus 29 weeks in FY 2000 ($212.9) (-$5.9) as the new detectors are installed during scheduled downtime. -$5.1
- **SLAC:** Research and Technology has a net increase of $3.6 million for additional Next Linear Collider R&D (+$2.3) and B-Factory support (+$2.3), and decreased costs due to the completion of the BABAR detector (-$1.0). Facilities funding decreases by $0.9 million for three fewer weeks of operation in FY 2001, and reduced equipment and general support. +$2.7
- **BNL:** Research declines by $1.2 million; facilities increase by $2.6 million for two more weeks of operation. +$1.4
- Funding for university research declines by $1.9 million, but is more than offset by an increase of $5.5 million for capital equipment for universities. +$3.6
- A computer modeling and simulation program is begun. +$5.0
- Construction continues on the **Neutrinos at the Main Injector** *(FY 2000 $22.0; FY 2001 $23.0)*, **Wilson Hall Safety Improvements** *(FY 2000 $4.7; FY 2001 $4.2)*, and the **SLAC Research Office Building** *(FY 2000 $2.0; FY 2001 $5.2)*. +$3.7
- Other research activities. -$0.4

Nuclear Physics ***(FY 2000 $355.8; FY 2001 $369.9)*** **+$14.1**

- Funding for operations and research at the **Bates** Accelerator at MIT increases to support the BLAST program; BLAST assembly is competed in FY 2001. +$1.6
- **Thomas Jefferson National Accelerator Facility (TJNAF)** operations are maintained at 4,500 hours. +$2.0
- Medium Energy Nuclear Physics will support 600 hours of operation of the AGS at Brookhaven National Laboratory partially offset by a reduction of $2.0 million for RHIC research. +$1.5
- **Relativistic Heavy Ion Collider (RHIC)** funding supports 4,800 hours of operation versus 4,050 in FY 2000. +$3.7
- R&D and pre-conceptual design activities for the **Rare Isotope Accelerator** increase. +$1.5
- Nuclear Theory includes a computational modeling and simulation activity. +$2.5
- Research and operation of the **Radioactive Beam Ion Facility** is continued at near FY 2000 levels. +$0.9
- Other research activities. +$0.4

Biological & Environmental Research ***(FY 2000 $434.1; FY 2001 $445.3)*** **+$11.2**

- Complete several congressionally directed projects. -$30.4
- Fund a project at the University of South Carolina School of Public Health to support communities served by DOE facilities. +$5.8
- Upgrade the Structural Biology Centers at LBNL and ANL. +$7.5
- Develop high-throughput technologies for understanding gene function. +$5.5
- Begin the Microbial Cell Project to better understand gene structure, functions, and interactions at the DNA level. +$9.7
- Reduce funding for the low dose radiation effects program. -$6.5
- Human genome funding increases to support sequencing technology. +$1.4
- Funding increases for USGCRP (+$2.4) and CCTI (+$3.7). +$6.1
- Funding for Environmental Remediation declines: bioremediation and cleanup research (-$5.9); EMSL (+$3.6). -$2.3
- Medical Applications has increased funding for real-time imaging of gene function (+$3.7) and biomedical engineering to prevent, diagnose, and treat disease (+$5.0). +$8.7
- Begin construction on the Laboratory for Comparative and Functional Genomics. +$2.5
- Other research activities. +$3.2

Basic Energy Sciences *(FY 2000 $779.4; FY 2001 $1,015.8)* **+$236.4**

- **Nanoscale science** increases from $47.0 million (funded in core research programs) in FY 2000 to $83.1 million in FY 2001. +$36.1
- EPSCoR increases to support student training and university/laboratory partnerships. +$3.0
- **HFBR** shutdown and surveillance to reflect facility closure. (FY 2000 $19.6; FY 2001 $17.5) -$2.1
- **Spallation Neutron Source:** R&D increases (+$1.2) and construction increases (+$161.9). +$163.1
- Start the **Microbial Cell** project to improve understanding of cell function. +$2.5
- Begin a university-based **Robotics and Intelligent Machines** research effort. +$2.0
- Continue the **SPEAR 3** upgrade in conjunction with NIH. +$8.0
- Enhance research in the chemical sciences using computer modeling and simulation. +$2.0
- Other changes in research activities and facility operations. +$21.7

Advanced Scientific Computing Research *(FY 2000 $127.9; FY 2001 $182.0)* **+$54.1**

- Applied Math-Increases for Computational Sciences Graduate Fellowship Program (+$2.0), and enabling technology centers for applications on terascale computers (+$7.7). +$9.7
- Computer Science-enabling technology centers for computer science on terascale computers for simulation and modeling. +$7.5
- Advanced Computing Software Tools-enabling technology centers to display tools to scientific community. +$4.0
- Additional pilot projects in basic research. +$5.8
- Develop advanced networking systems (+$1.5); tools for advanced remote access (+$2.6); and expand National Collaboratory Pilot Projects (+$6.0). +$10.1
- Enhance NERSC to 5 teraflop performance. +$5.8
- Add an additional application at the Advanced Computing Research Facilities. +$2.0
- Enhance the ESnet for terascale applications. +$4.5
- Increase funding for technology research partnerships. +$3.5
- Other program increases. +$1.2

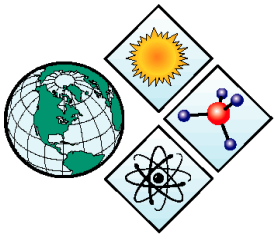
Fusion Energy Science *(FY 2000 $247.8; FY 2001 $247.3)* **-$0.5**

- Continue the **TFTR** D&D and site maintenance (FY 2000 $13.4: FY 2001 $19.6). +$6.2
- Funding declines for: Tokamak research at DIII-D (-$1.4); the Alcator C-Mod (-$0.5); and on diagnostic development and international collaborations (-$1.2). -$3.1

- Research on Alternative concepts, including Inertial Fusion Energy (-$0.9) declines. -$2.9
- Enhanced simulation and modeling of complex fusion systems. +$3.0
- Facility Operations: DIII-D operations increase by three weeks (+$3.1), offset by completion of the upgrade project (-$4.9); Alcator C-Mod operations decrease by four weeks (-$0.6); and NSTX operations increase by three weeks (+$1.6), offset by completion of the Neutral Beam Project in FY 2000 (-$2.5). -$3.3
- Other research activities. -$0.4

Program Direction ***(FY 2000 $131.7; FY 2001 $141.2)*** **+$ 9.5**

- Program Direction funding increases to support waste management responsibilities (transferred from Environmental Management) at Chicago and Oakland, the Spallation Neutron Source Project at Oak Ridge, and the Headquarters Scientific and Technical Workforce Retention and Recruitment program. +$3.0
- Science Education provides additional funding of $0.5 million for the Laboratory Fellowship Program and $1.5 million support to community colleges for biotechnology, environmental sciences, and computer technicians and paraprofessionals. +$2.0
- Field Operations funding is increased for support at Chicago, Oak Ridge, and Oakland. +$4.5



Departmental Administration

Mission

The offices funded under the Departmental Administration appropriation account provide services that are necessary to support headquarters with guidance in human resources, administration, accounting, budgeting, legal services, life cycle asset management, workforce diversity, minority economic impact, policy, international affairs, congressional and intergovernmental liaison, and public affairs. Their mission is to provide internal and external customers with timely, quality service to facilitate achievement of DOE's programmatic goals.

Program Overview

Organizations supported in this appropriation include: the Office of the Secretary; Management and Administration; Chief Financial Officer; Congressional and Intergovernmental Affairs; Public Affairs; General Counsel; Policy; International Affairs; Economic Impact and Diversity; Board of Contract Appeals; and Contract Reform and Privatization. In addition, the account budgets for Cost of Work for Others, which advances funds for the cost of products and services provided by DOE's laboratories and other contractors to non-departmental users. This account receives offsetting revenues/receipts for the goods and services associated with the Cost of Work for Others program as well as miscellaneous revenues from other sources.

Budget Overview

The Department continues to provide funding for upgrades and improvements to our outdated information technology infrastructure as part of the **Corporate Management Information Program**, which began in FY 1998. Starting in FY 2000, this program will be managed by the Chief Information Officer in the Office of Security and Emergency Operations. FY 2001 funds for this initiative will permit the Department to continue physical improvements in DOE's telecommunications infrastructure; provide for expanded connectivity/inter-operability and enhanced cyber-security on the DOE Corporate Network; and implement the Strategic Information Management program and information architecture standards. These improvements are critical and will create the necessary platform permitting the Department to take full and immediate advantage of new on-line corporate systems and other technology improvements resulting from the Corporate Management Information Program. The FY 2001 funding level will enable further implementation of planned enhancements to the financial and personnel management systems and other state-of-the-art management information systems. These enhancements will allow the reliable and effective capture and integration of information and financial data, making it available to executives, managers, and staff on a real-time basis. The Department is exploring options to help fund the Corporate Management Information Program, through the benefitting organizations.

In support of DOE's overall mission, the Departmental Administration account provides funding for 11 Department-wide management organizations. The total projected full-time equivalent (FTE) employees for FY 2001 is 1,165. Additionally, Departmental Administration provides for programmatic activities such as energy and environmental

policy studies, minority education, business/community support and assistance, and Department-wide technical training development.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Departmental Administration					
Administrative operations					
Office of the Secretary	5,000	5,308	5,731	423	8.0%
Management and administration	83,125	81,819	90,699	8,880	10.9%
Chief financial officer	24,117	26,997	30,748	3,751	13.9%
Field management	7,500	1,000	——	-1,000	-100.0%
Board of contract appeals	715	838	878	40	4.8%
Congressional and intergovernmental affairs	4,900	4,910	5,146	236	4.8%
Public affairs	3,500	3,700	4,150	450	12.2%
General counsel	19,410	20,750	22,724	1,974	9.5%
Policy	7,609	6,854	8,088	1,234	18.0%
International Affairs	7,744	7,499	10,022	2,523	33.6%
Economic impact and diversity	6,400	6,400	6,626	226	3.5%
Contract Reform	2,833	3,000	2,500	-500	-16.7%
Subtotal, Administrative operations	172,853	169,075	187,312	18,237	10.8%
Cost of work for others	44,312	33,205	34,027	822	2.5%
Subtotal, Departmental Administration (gross)	217,165	202,280	221,339	19,059	9.4%
Use of prior year balances & other adjustments	-1,595	-15,368	-8,000	7,368	47.9%
Total, Departmental Administration (gross)	215,570	186,912	213,339	26,427	14.1%
Miscellaneous revenues					
Revenues associated with cost of work	-26,375	-35,587	-52,827	-17,240	-48.4%
Other revenues	-47,793	-71,300	-75,935	-4,635	-6.5%
Total, Miscellaneous revenues	-74,168	-106,887	-128,762	-21,875	-20.5%
Total, Departmental Administration (net)	$141,402	$80,125	$84,577	4,452	5.7%

FY 2001 Budget Request

The FY 2001 request provides $181.6 million for salary and benefit expenses, travel, contractual services, and program support for Departmental Administration program offices – excluding the Office of the Secretary, which is funded separately within the account. Examples of program support activities are: advancing U.S. policies to facilitate U.S. private sector investment; analyzing and assessing emerging environmental issues; supporting the Department's corporate information management system; and supporting minority education/business community assistance. The request also includes $5.7 million for the Office of the Secretary to support 40 FTEs.

Working Capital Fund – $80.2 million

The Working Capital Fund is both a financial and a service delivery mechanism to support 12 business-type activities used by all DOE headquarters offices. The Fund consolidates administrative costs to: 1) ensure that mission-related Program Direction budgets reflect a representative share of the cost of administrative services; 2) improve the efficiency of administrative services by providing program managers with support cost information to make better consumer choices; 3) create additional incentives for service providers to operate economically and competitively; and 4) expand the flexibility of the Department's budget structure to address specific program customer needs more directly. Oversight of the Working Capital Fund is accomplished through an Executive Board of 14 senior-level members, who determine the functional activities to be included in the Fund, as well as the pricing policies and methods governing those activities. Pricing policies are implemented through a combination of fee-for-service basis (for direct usage) and pro-rata allocation basis (for common and infrastructure usage).

Working Capital Fund
FY 2000 and FY 2001 Activities

	FY 2000	FY 2001
Building Rent & Operations	55,907	53,566
Telephone Services	6,995	6,995
Mail Services	1,612	1,612
Printing and Graphics	3,514	3,514
Supplies	2,827	2,827
Photocopying	2,220	2,220
Contract Closeouts	569	569
Desktop	1,605	1,605
Payroll Processing	2,208	3,102
Networking	3,262	3,262
Corporate Executive Information System	59	59
Electronic Services	894	896
Total	81,672	80,227

Cost of Work for Others – $34.0 million

The budget request of $34.0 million supports the cost of products and services provided by the field offices and national laboratories for non-DOE users. Work which results from revenue programs is consistent with DOE's mission or is reimbursable work for state and local entities which are precluded by law from making advance payments. When work is completed, costs are offset with revenues received from the sale of these products or services. Examples of proposed FY 2001 revenue generating products or services are sales of foreign research reactor fuel, timber, utilities, and research and development activities conducted for state and local governments. The request also includes $15.7 million to cover costs associated with the acceptance, storage, and management of foreign reactor spent fuel, which is offset by revenues on a dollar for dollar basis.

Revenues – $128.8 million

Revenue estimates of $52.8 million are associated with the Cost of Work for Others program described above. Miscellaneous revenues of $75.9 million are derived from the sale of by-products that have no costs associated with the Departmental Administration appropriation, but which offset the appropriation. Examples are: handling and basin storage of spent fuel cores from Navy ships; charges to the Navy for nuclear material burn-up while nuclear cores are in operation; and federal administrative charges on DOE Reimbursable Work for Others.

Highlights of Program Changes (dollars in millions)

Office of Secretary *(FY 2000 $5.3; FY 2001 $5.7)* **+$0.4**

The increase is due to the full effect of the FY 2000 pay raise, the partial effect of the FY 2001 pay raise, promotions, within grade increases, and performance awards. +$0.4

Management and Administration *(FY 2000 $81.8; FY 2001 $90.7)* **+$8.9**

The increase for the Office of Management and Administration supports:

- funding for the FY 2000 pay raise, the partial effect of the FY 2001 pay raise, promotions, and the hiring of ten employees and the transfer of two employees from the Office of Environment, Safety and Health to staff newly acquired activities – Operations and Management Support, Real Estate Management and Oversight, and Aviation Management; +$5.1
- funding for the operation and maintenance costs of the human resources information systems modules, as it moves out of the Corporate Management Information Program developmental stage; +$2.1
- funding for the operation and expansion of electronic commerce systems Department-wide; and +$1.5
- support service funding for operations and management support. +$0.2

Chief Financial Officer *(FY 2000 $27.0; FY 2001 $30.7)* **+$3.7**

The increase for the Office of the Chief Financial Officer supports:

- the full effect of the FY 2000 pay raise, the partial effect of the FY 2001 pay raise, promotions, and the hiring of ten additional employees to strengthen analytical capabilities and to staff newly acquired responsibilities; +$1.8
- compensation for the use of $0.5 million in carryover balances in FY 2000 to cover salaries and benefits; +$0.5
- moving the Executive Information System and Financial Data Warehouse from the development to the production stages; and +$1.2
- replacement of outdated computer workstations. +$0.2

Field Integration *(FY 2000 $1.0; FY 2001 $0.0)* **-$1.0**

The Office of Field Integration was dismantled in FY 2000 with the following functions transferred to other organizations: Field Management Council and Real Estate and Maintenance Management (to Management and Administration); Engineering and Construction Oversight (to the Chief Financial Officer); and Utilities Management (to Energy Efficiency).

General Counsel *(FY 2000 $20.8; FY 2001 $22.7)* **+$1.9**

The increase for the Office of General Counsel supports:

- the full effect of the FY 2000 pay raise, the partial effect of the FY 2001 pay raise, promotions, within-grade increases, and two hires; +$0.8
- compensation for the use of $0.3 million in carryover balances in FY 2000 to cover salaries and benefits; +$0.3

- additional support services for outside mediators for Alternative Dispute Resolution, law library staff, and outside attorneys for Intellectual Property; +$0.1
- processing of patent and licensing actions to provide adequate protection of the Department's intellectual property; +$0.3
- funding for time-sharing of electronic databases such as Lexis/Nexis and Westlaw, previously funded outside of Departmental Administration; and +$0.3
- replacement of outdated workstation hardware, increases in Working Capital Fund items, training costs, and other items. +$0.1

Office of Policy *(FY 2000 $6.9; FY 2001 $8.1)* **+$1.2**

The increase for the Office of Policy is comprised of the following:

- increases for pay raise, promotions, and the cost of living adjustments; +0.4
- compensation for the use of $0.2 million in prior year balances in FY 2000 that will not be available in FY 2001; and +0.2
- increases in support for environmental policy studies. +0.6

International Affairs *(FY 2000 $7.5; FY 2001 $10.0)* **+$2.5**

The increase for the Office of International Affairs is comprised of the following:

- compensation for the use of $1.0 million in prior year balances in FY 2000 that will not be available in FY 2001; +$1.0
- increases for the pay raise, promotions, and the hiring of three employees; +$0.5
- increase in travel to support Secretarial initiatives and ministerial events; +$0.4
- additional funds for international policy and environmental studies; and +$0.1
- increases for: purchase of new computer workstations; printing costs for ministerial events; hardware/software support; and working capital fund expenditures. +$0.5

Economic Impact Diversity *(FY 2000 $6.4; FY 2001 $6.6)* **+$0.2**

The increase for Economic Impact and Diversity supports:

- The FY 2000 pay raise and the partial effect of the FY 2001 pay raise; +$0.2
- compensation for the use of approximately $0.2 million in carryover balances in FY 2000 for salaries and benefits; and +$0.2
- offset by a decrease in minority education and business and community development due to constrained funding. -$0.2

Other *(FY 2000 $12.4; FY 2001 $12.7)* **+$0.3**

The net increase for the remaining programs supports:

- the full effect of the FY 2000 pay raise, the partial effect of the FY 2001 pay raise, and promotions (Congressional and Intergovernmental Affairs +$0.1 and Public Affairs +$0.3); +$0.4

- time-sharing of electronic databases previously funded outside of Departmental Administration including: Associated Press, Congressional Quarterly, and Lexis-Nexis for the Offices of Public Affairs and Congressional and Intergovernmental Affairs; +$0.2
- technical computer support, public service announcements, and the working capital fund; and +$0.2
- offset by a decrease in support service contractor funding in Contract Reform and Privatization. -$0.5

Cost of Work for Others ***(FY 2000 $33.2; FY 2001 $34.0)*** **+$0.8**

An increase of $4.2 million is due to a projected increase in the number of shipments of spent nuclear fuel; offset by a decrease of $1.9 million at the Stanford Linear Accelerator (SLAC) due to a reduction in Japanese participation at this facility; and a projected decrease of $1.5 million in research and development projects at various sites for state and local governments.

Revenues ***(FY 2000 -$106.9; FY 2001 -$128.8)*** **-$21.9**

The increase in revenues includes $20.0 million associated with the sale of highly enriched uranium and $9.3 million in miscellaneous revenues from federal administrative charges due to the expiration of blanket waivers granted in previous years; offset by a decrease of $4.6 million from the Navy for nuclear material burn-up due to changes in the schedule for off-loading Navy ships; and $2.8 million in revenues associated with the Cost of Work for Others Program as noted above.

Office of the Inspector General

Mission

The major statutory responsibilities of the Office of Inspector General (OIG), as stated in the Inspector General Act of 1978, as amended, are to detect and prevent fraud, abuse, and violations of law and to promote economy, efficiency, and effectiveness in the operations of the Department of Energy (DOE).

Program Overview

The OIG promotes economy and efficiency in DOE programs through audits, inspections, investigations, and other reviews. Major areas of review include: Contract/Grant Administration; Intelligence/Counterintelligence; Safeguards and Security; Program Management and Operations; Environment, Safety, and Health; Infrastructure; Financial Management; Administrative Safeguards; and Information Technology Management. The OIG's actions to identify attainable economies and efficiencies in Department operations result in a substantial positive dollar impact, in addition to numerous other benefits from improved Department operations and reduced unlawful activity because of an active OIG presence..

Budget Overview

The FY 2001 budget request for the OIG focuses resources on several activities, including implementation of the requirements of the Chief Financial Officers (CFO) Act of 1990 and the Government Management Reform Act (GMRA) of 1994. The CFO Act requires the submission of financial statements to the Office of Management and Budget (OMB) for each of the Department's revolving and trust funds, as well as activities which perform substantial commercial functions. The GMRA expanded the provisions of the CFO Act by requiring the OIG to audit financial statements covering all accounts and associated activities of the Department and to submit them to OMB annually.

The budget request also supports: increased performance reviews of the Department's high-risk activities, specifically environmental cleanup, technology transfer, contract management, and project management; increased coverage of DOE intelligence, counterintelligence, and security programs and operations; reviews of the actions of the **National Nuclear Security Administration**; an annual review of the Department's policies and procedures with respect to the export of military sensitive technologies and information to countries of concern; and continued improvement of internal technology expertise, including development of computer-related fraud profiles and forensic abilities.

Resources are also required to increase support for multi-agency task force initiatives to prevent and detect fraud, waste, and abuse within the Department and to address the growing number of Qui Tam lawsuits (False Claims Act). As of January 2000, the OIG is actively assisting the Justice Department on 24 Qui Tam cases. These cases have a potential recovery value of $121.6 million.

Resources will also be focused on auditing DOE's value engineering program as required by OMB Circular A-131 and reporting, at least quarterly and "as necessary and

appropriate," to the Intelligence Oversight Board as required by Executive Order 12863, the "President's Foreign Intelligence Advisory Board."

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Office Of Inspector General	28,922	29,500	33,000	3,500	11.9%

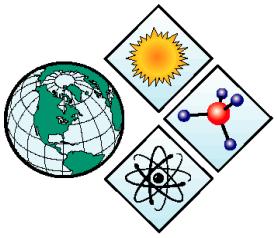
FY 2001 Budget Request

The FY 2001 budget request for the OIG is $33.0 million for the salaries, benefits, travel, and support services associated with 277 FTEs. Performance objectives for FY 2001 activities include: completing the required annual financial statement audits by designated due dates; completing at least 60 percent of audits planned for the year and replace those audits not started with more significant audits which identify time-sensitive issues needing review; initiating at least 80 percent of inspections planned for the year and replace those not started with inspections having greater potential impact; and obtaining at least a 75 percent acceptance rate on criminal and civil cases formally presented for prosecutorial consideration.

Highlights of Program Changes ($ in millions)

Office of Inspector General ***(FY 2000 $29.5; FY 2001 $33.0)*** **+$3.5**

The FY 2001 increase of $3.5 million will support an additional 12 FTEs, the pay raise and base salary increases, and the increased workload requirements to: increase performance reviews of the Department's high-risk activities; increase coverage of DOE intelligence, counterintelligence, and security programs and operations; conduct an annual review of DOE's policies and procedures with respect to the export of military sensitive technologies and information; conduct reviews of the actions of the National Nuclear Security Administration; and continue to improve internal technology expertise.



National Nuclear Security Administration

The National Defense Authorization Act for FY 2000, Public Law 106-65, established a semi-autonomous agency within the Department of Energy, the *National Nuclear Security Administration (NNSA)*. On January 1, 2000, the Department submitted the *NNSA Implementation Plan* to the congress. The plan anticipates that DOE will operate with two Under Secretaries – one as the Administrator for the NNSA, and the second as the overseer for DOE's energy, environmental, and science programs. We expect that an individual will be nominated to serve as the Under Secretary for Nuclear Security prior to March 1, 2000, when NNSA becomes operational.

NNSA will be comprised of the current DOE Offices of Defense Programs, Nonproliferation and National Security, Fissile Materials Disposition, and Naval Reactors. The Albuquerque and Nevada Field Operations Offices will report to the Deputy Administrator for Defense Programs as part of NNSA. The following support offices will also be established within the NNSA: a General Counsel of the NNSA; the Office of Defense Nuclear Counterintelligence; and the Office of Defense Nuclear Security. The Office of the NNSA Administrator will have a staff to support legislative affairs, public affairs, intergovernmental liaison, budget, and procurement.

The Department will manage NNSA to permit NNSA laboratories and facilities to continue to conduct research for the non-NNSA programs of DOE and other government or private organizations. It is critically important that all of the missions of the Department have access to the technical expertise and specialized facilities at all of the laboratories and facilities. There will be challenges, particularly with regard to the development and coordination of general laboratory policies, the functioning of the Department's Research and Development Council, and other cross-cutting activities involving research and development activities across the agency.

On March, 1, 2000, the Department will establish the **Office of the NNSA Administrator** and will operate it using existing resources within the Department. For FY 2001, the NNSA Administrator's Office will be supported by the resources proposed in the FY 2001 budget request. As detailed requirements are determined, the budget may need to be adjusted.

Weapons Activities

Mission

The mission of the Department's Weapons Activities is to maintain a safe, secure, and reliable nuclear weapons stockpile without nuclear testing. **Defense Programs (DP)** is using a science-based approach that relies on understanding and expert judgement, rather than on underground nuclear testing and the development of new weapons, to predict, identify, and correct problems affecting the safety and reliability of the stockpile. Enhanced experimental capabilities and new tools in computation, surveillance, and advanced manufacturing are necessary to certify weapon safety, performance, and reliability without underground nuclear testing. Weapons will be maintained, modified, or retired and dismantled as needed to meet military requirements. Additionally, potential safety and reliability issues will be remediated and managed consistent with arms control objectives.

Program Overview

Beginning in FY 2001, Weapons Activities will appear under the **National Nuclear Security Administration (NNSA)**, reflecting its transfer within DOE to the newly established NNSA on March 1, 2000. Also in FY 2001, changes in the budget structure of Weapons Activities are proposed. The changes reflect maturation of the stockpile stewardship programs without underground nuclear testing and are a result of numerous management studies that have recommended a more unified program management approach that includes closer integration of all research, development, and production activities.

The Weapons Activities budget request now has four main components: Stewardship Operations and Maintenance (O&M); Secure Transportation Asset (formerly Transportation Safeguards Division); Program Direction; and Construction. Within **Stewardship O&M**, there are three subcomponents: Directed Stockpile Work; Campaigns; and Readiness in Technical Base and Facilities (RTBF).

- **Directed Stockpile Work** funds activities that directly support specific weapons in the nuclear stockpile. These activities include maintenance, day-to-day care, and planned refurbishment. This area also includes reliability assessments; weapon dismantlement and disposal; research, development, and certification activities in direct support of each weapon; and long-term future-oriented research and development to solve either current or projected stockpile problems.
- **Campaigns** are focused scientific and technical efforts to develop and maintain the critical capabilities and tools needed to support continued assessment and certification of the stockpile for the long-term, in the absence of nuclear testing. Campaigns are technically challenging, multi-functional efforts that have definitive milestones, specific work plans, and specific end dates. There are currently 17 planned campaigns.
- **Readiness in Technical Base and Facilities (RTBF)** provides the DP share of funding for the underlying physical infrastructure and operational readiness

required to conduct Directed Stockpile Work and Campaigns at the national laboratories, Nevada Test Site (NTS), and the plants. This includes ensuring that facilities are operational, safe, secure, compliant with regulatory requirements, and that a defined level of readiness is sustained at facilities funded by Defense Programs. The Department is still reviewing the budget structure changes associated with RTBF, and may offer revisions as technical amendments to the Weapons Activities budget request.

The **Secure Transportation Asset** component provides for the safe, secure movement of nuclear weapons, special nuclear material, and weapon components between military locations and nuclear complex facilities within the United States. Also supported is the cost of the Federal Support for the Special Agent Force and other personnel within the Transportation Safeguards Division at the Albuquerque Operations Office.

The **Program Direction** decision unit funds all federal personnel related costs; support and contractual services for federal employees; and other program support costs, with the exception of those associated with the Secure Transportation Asset.

The **Construction** decision unit includes line-item projects to establish, maintain, and preserve the physical infrastructure of the national security enterprise. Construction projects provide production capability as well as state-of-the-art research and development capabilities to enable continued maintenance and certification of the nuclear weapons stockpile without underground nuclear testing.

Budget Overview

The Defense Programs request for FY 2001 is $4,594.0 million, an increase of $272.8 million or 6.3 percent above the FY 2000 comparable appropriation. In addition to this FY 2001 budget request, the Administration is supporting a request for $55.0 million in supplemental funding for FY 2000. If this is approved, the growth over the FY 2000 level will be approximately five percent.

In FY 2000, Supplemental funding ($55.0 million) is requested to cover additional costs for personnel and other resources at DOE weapons production facilities needed to meet milestones in the weapons refurbishment schedule developed jointly by the Departments of Energy and Defense. The requested funds would support restart of enriched uranium operations at the Y-12 Plant; complete critical facility projects at the Kansas City Plant; and address critical skills retention and other concerns at the Y-12, Kansas City, and Pantex Plants. (*Directed Stockpile Work $6.5 million; Campaigns $7.5 million; and RTBF $41.0 million)*

The FY 2001 budget request supports performance-based program management and budgeting for the Stockpile Stewardship program. The increase in FY 2001 will cover inflationary increases and support current infrastructure, and does not anticipate involuntary layoffs at the laboratories, Nevada Test Site (NTS), or production plants at this time. We are working to ensure the availability of a workforce with the critical skills necessary to meet long-term mission requirements, as recommended by the Chiles Commission.

The FY 2001 request also supports initiatives begun during the past several years that are maturing, and contributing the new tools and technologies needed for science based stewardship without nuclear testing. The request protects the highest priority work

associated with pit aging issues and surety improvements, and allocates significant growth to stockpile support activities and most Campaigns.

Activities previously included in the **Accelerated Strategic Computing Initiative (ASCI)** are now budgeted in the Defense Applications and Modeling campaign and the Advanced Simulation and Computing component of RTBF. Defense Programs continues to manage ASCI as an integrated program, progressing toward the previously identified ASCI goals. *(FY 2000 $510.2; FY 2001 $595.2)*

Additionally, three new construction starts are planned: a Distributed Information Systems Laboratory at SNL; an HEU Storage Facility at Y-12; and a Weapons Engineering Test Laboratory at Pantex. The **National Ignition Facility (NIF)** project has made significant changes in its execution plan to address technical issues in assembling and installing the laser infrastructure, and a new NIF baseline will be submitted to the congress by June 1, 2000. *(Operation and Maintenance: FY 2000 $5.9; FY 2001 $5.9; Construction: FY 2000 $247.2, FY 2001 $74.1)*

The Department plans to accommodate additional FY 2001 funding needs for NIF which result from the new baseline or related activities, if any, within the budgets for DOE Defense Programs and the Lawrence Livermore National Laboratory.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Weapons Activities					
Stewardship operations and maintenance					
Directed stockpile work	721,558	759,977	836,603	76,626	10.1%
Campaigns	999,573	928,598	1,049,907	121,309	13.1%
Readiness in technical base and facilities	1,784,228	1,869,988	1,953,573	83,585	4.5%
Total, Stewardship operations and maintenance	3,505,359	3,558,563	3,840,083	281,520	7.9%
Secure transportation asset	91,391	91,463	115,673	24,210	26.5%
Program direction	221,056	203,628	224,071	20,443	10.0%
Construction	518,984	530,256	414,173	-116,083	-21.9%
Subtotal, Weapons Activities	4,336,790	4,383,910	4,594,000	210,090	4.8%
Use of prior year balances & other adjustments	-50,994	-62,668	——	62,668	100.0%
Total, Weapons Activities	4,285,796	4,321,242	4,594,000	272,758	6.3%

FY 2001 Budget Request

Directed Stockpile Work – $836.6 million

Directed Stockpile Work requests $836.6 million in FY 2001, an increase of $76.6 million or 10.1 percent above the FY 2000 comparable appropriation. The request supports near term stockpile needs. Specifically, full scale engineering development continues for the W80 and W76, and pit manufacturing and certification efforts continue for the W88. Efforts will be made to explore less complex, lower cost workload options in conjunction with the Department of Defense.

Campaigns – $1,049.9 million

The Campaigns component requests $1,049.9 million in FY 2001, an increase of $121.3 million or 13.1 percent above the FY 2000 comparable appropriation. The request supports significant campaign activity and milestones to be reached in Pit Manufacturing Readiness, Primary Certification, Advanced Radiography, and Advanced Design and Production Technologies. Progress will be maintained to achieve an assured source of tritium; develop technology needed for NIF; and develop new stewardship tools, including simulation and modeling, **Dual-Axis Radiographic Hydrodynamic Test Facility (DARHT)**, advanced burn codes, and subcritical experiments.

Readiness in Technical Base and Facilities (RTBF) – $1,953.6 million

Readiness in Technical Base and Facilities (RTBF) requests $1,953.6 million in FY 2001, an increase of $83.6 million or 4.5 percent above the FY 2000 comparable appropriation. RTBF includes funding to operate and maintain programmatic facilities in a state of readiness where each facility is prepared to execute tasks identified in the Campaigns and Directed Stockpile Work. RTBF also provides funding for the advanced simulation and computational infrastructure, including the improved visualization capabilities necessary to support Stockpile Stewardship programs. In FY 2001, Defense Programs will acquire and initiate efforts on 30 TeraOps computational performance and complete operational improvements on 10 TeraOps Platforms.

Secure Transportation Asset – $115.7 million

The Secure Transportation Asset decision unit requests $115.7 million in FY 2001, an increase of $24.2 million or 26.5 percent above the FY 2000 comparable appropriation. The request provides funding to improve the safe, secure movement of nuclear weapons, special nuclear material, selected non-nuclear weapons components, and limited-life components to and from military locations and between nuclear weapons complex facilities within the continental United States.

Program Direction – $224.1 million

For the Program Direction decision unit, the budget requests $224.1 million in FY 2001, an increase of $20.4 million or ten percent above the FY 2000 comparable appropriation. Funding will support current FY 2000 staffing, as well as the Secretarial initiative to enhance scientific and technical talent in the federal workforce. Re-engineering the field federal workforce will be undertaken as part of a multi-year effort to realign responsibilities and associated staffing.

Construction – $414.2 million

The Construction decision unit requests $414.2 million in FY 2001, a decrease of $116.1 million or 21.9 percent below the FY 2000 comparable appropriation. The request supports three new construction project starts, in addition to 19 continuing projects at the defense laboratories, Nevada Test Site, and production plants. In FY 2001, Defense Programs is piloting a Departmental initiative to request **"Preliminary Project Design and Engineering"** funding for potential outyear new construction starts *($14.5 million)*. This pilot program is intended to remedy problems in construction projects related to inadequate scope definition and premature cost estimates.

Highlights of Program Changes ($ in millions)

Directed Stockpile Work *(FY 2000 $ 760.0; FY 2001 $836.6)* **+$76.6**

The budget request for the Directed Stockpile Work increases by $76.6 million from FY 2000 to FY 2001. The changes are described below.

- *Stockpile Research and Development*: Start baselining of W80 and B61-7/11 weapon systems and focus efforts on the development of improved Joint Test Assemblies, gas transfer systems, and neutron generators. *(FY 2000 $236.1; FY 2001 $243.3)* +$7.2
- *Stockpile Maintenance:* Increase is driven by production costs for the W76 and W87 components, and development of and engineering for the B61-7 and W76. *(FY 2000 $240.7; FY 2001 $258.0)* +$17.2
- *Stockpile Evaluation:* Increase will largely restore workload level to meet critical requirements for providing reliability assessments to DOD. This includes restart of Y-12 activities supporting Joint Test Assemblies and Quality Evaluations. *(FY 2000 $118.1; FY 2001 $151.7)* +$33.6
- *Production Support and Other:* Increases at Y-12 which support directed workload schedules particularly in the area of Stockpile Evaluation. *(FY 2000 $165.0; FY 2001 $183.6)* +$18.6

Campaigns *(FY 2000 $ 928.6; FY 2001 $1,049.9)* **+$121.3**

The budget request for Campaigns increases by $121.3 million from FY 2000 to FY 2001. The changes are described below.

- *Primary Certification:* Supports increasingly complex, integrated hydrodynamic radiography experiments and subcritical experiments, needed for the development of computer simulations. *(FY 2000 $29.5; FY 2001 $41.4)* +$11.9
- *Advanced Radiography:* Optimize the first axis beam on DARHT which became operational in FY 1999. Conduct R&D to begin to define the requirements of advanced radiography capabilities to support certification of refurbished and replaced primaries. *(FY 2000 $37.9; FY 2001 $43.0)* +$5.1
- *Secondary Certification and Nuclear Systems Margins:* Increased funding to complete design of aboveground experiments to examine high explosives-induced case dynamics and enhance hydrodynamic modeling capabilities. *(FY 2000 $44.4; FY 2001 $53.0)* +$8.6
- *Inertial Confinement Fusion and High Yield:* Begin design and prototype of the cryogenic target fielding system for NIF, develop initial set of core diagnostics for NIF, and conduct experiments on ignition target design and laser-pulse conditions necessary for ignition. *(FY 2000 $99.7; FY 2001 $120.8)* +$21.1
- *Defense Applications and Modeling:* Increased efforts in verification and validation of prototype codes; develop and apply improved software engineering techniques to code development projects; and quantify uncertainties of code runs versus Campaign-generated data to enhance the predictability of weapons simulations. *(FY 2000 $227.7; FY 2001 $249.1)* +$21.4

- *Enhanced Surveillance:* Continues to conduct study to determine pit lifetime. *(FY 2000 $74.0; FY 2001 $89.7)* +$15.6
- *Pit Manufacturing Readiness:* Continue the manufacture of development pits leading toward the manufacture of a certifiable W88 pit. *(FY 2000 $70.0; FY 2001 $108.0)* +$38.1
- *Secondary Readiness:* Campaign begins in FY 2001 and will conduct studies and develop upgrade/modernization plans to address secondary manufacturing infrastructure gaps and take measures to address critical skills needs and issues in a systemic way. *(FY 2000 $0.0; FY 2001 $15.0)* +$15.0
- *Tritium Readiness:* Decrease is associated with slowing engineering development and demonstration activities for the **Accelerator Production of Tritium (APT)** as the backup Tritium production source (-$32.8 million). This decrease is partially offset by an increase for the **CLWR** technology as the Tritium Producing Burnable Absorber Rod (TPBAR) component procurement increases with the manufacture of the first batch of TPBARs for irradiation (+$9.2 million). *(FY 2000 $100.6; FY 2001 $77.0)* -$23.6
- *Other:* Small increases throughout the remainder of Campaigns. *(FY 2000 $244.8; FY 2001 $252.9)* +$8.1

Readiness in Technical Base and Facilities (RTBF) ***(FY 2000 $ 1,870.0; FY 2001 $1,953.6)*** **+$83.6**

The budget request for RTBF increases by $83.6 million from FY 2000 to FY 2001. The changes are described below.

- *Program Readiness:* Increased costs at NTS associated with the Federal Facility Agreement with the State; improvements in archived testing data accessibility; and a planned NTS Environmental Impact Study update. *(FY 2000 $62.5; FY 2001 $75.8)* +$13.3
- *Storage:* The decrease is primarily at the Pantex Plant and is associated with the transfer of the responsibility for surplus plutonium to the Office of Fissile Materials Disposition. *(FY 2000 $15.6; FY 2001 $9.1)* -$6.6
- *Advanced Simulation and Computing:* Continues hardware acquisitions, including the ASCI 30 TeraOps supercomputer at LANL. Supports increases in the VIEWS operation, enabling weapons scientists and engineers to "see and understand" results of calculations performed on the ASCI computers. *(FY 2000 $397.1; FY 2001 $477.1)* +$80.0
- *Other:* Minor changes for Facility Operations, Material Recycle and Recovery processes, and funding for pit containers used at the Pantex Plant to meet DNFSB recommendations. -$3.1

Secure Transportation Asset ***(FY 2000 $91.5; FY 2001 $115.7)*** **+$24.2**

- Increase provides required security enhancements to include: replacement of older trailers (SSTs) with newly designed SafeGuards Transporter (SGT); improved escort vehicles and intra-convoy communications; intensive agent training;

special training for escort personnel; hiring up to 20 new TSD special agents per year; and grade increases consistent with mission responsibilities.

Program Direction *(FY 2000 $203.6; FY 2001 $224.1)* **+$20.4**

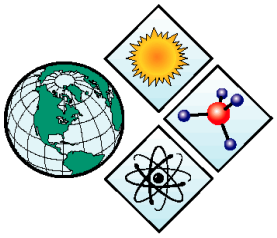
The budget request for Program Direction increases by $20.4 million from FY 2000 to FY 2001. The changes are described below.

- Provides increases necessary to support current federal staff levels and full year funding for new hires associated with Workforce 21 (30 FTEs). Supports re-engineering efforts for federal workforce. *(FY 2000 $130.8;FY 2001 $142.8)* +$12.0
- Provides funding for the **Scientific Retention and Recruiting Initiative**. *(FY 2000 $0.0; FY 2001 $3.6)* +$3.6
- Provides computers and computer security upgrades to the DP organizations at Oakland and Oak Ridge Operations Offices and limited maintenance for landlord responsibilities at Albuquerque and Nevada Operations Offices, and other small increases. *(FY 2000 $72.8; FY 2001 $77.7)* +$4.8

Construction *(FY 2000 $530.3; FY 2001 $414.2)* **-$116.1**

The budget request for the Construction decision unit decreases by $116.1 million from FY 2000 to FY 2001. The changes are described below.

- Supports three new construction projects (Distributed Information Systems Laboratory at SNL, $2.3 million; HEU Storage Facility at Y-12, $17.8 million; and Weapons Engineering Test Laboratory at Pantex ,$3.0 million). +$23.1
- Initiate DOE pilot project for **"Preliminary Project Design and Engineering"** to improve project baselines as part of an overall effort to improve construction project management. *(FY 2000 $0.0; FY 2001 $14.5)* +$14.5
- Reduction based on current baseline funding schedule for the **National Ignition Facility**. *(FY 2000 $247.2; FY 2001 $74.1)* -$173.1
- Reduction based on current baseline funding schedule for the **Dual-Axis Radiographic Hydrodynamic Test Facility (DARHT)**. *(FY 2000 $60.8; FY 2001 $35.2)* -$25.6
- Initiate construction and long-lead procurements for the **Tritium Extraction Facility**. *(FY 2000 $32.9; FY 2001 $75.0)* +$42.1
- Suspend design work on **Accelerator Production of Tritium (APT)** plant. *(FY 2000 $35.9; FY 2001 $0.0)* -$35.9
- Final year of funding for several projects and continuation of ongoing projects. +$38.8



Other Nuclear Security Activities

Mission

The Other Nuclear Security Activities appropriations account includes a variety of defense-related programs managed by different organizations. The Offices of Nonproliferation and National Security, Fissile Materials Disposition, and Naval Reactors are funded entirely by this appropriation.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Other Nuclear Security Activities					
Nonproliferation and national security	585,171	547,237	682,600	135,363	24.7%
Fissile materials control and disposition	200,710	201,673	223,435	21,762	10.8%
Russian plutonium disposition	200,000	—	—	—	—
Naval reactors	670,189	675,125	677,600	2,475	0.4%
Subtotal, Other nuclear security activities	1,656,070	1,424,035	1,583,635	159,600	11.2%
Use of prior year balances & other adjustments	-11,045	-49,000	—	49,000	100.0%
Total, Other Nuclear Security Activities	1,645,025	1,375,035	1,583,635	208,600	15.2%

Nonproliferation and National Security

Mission

The **Office of Nonproliferation and National Security** works to reduce the danger to U.S. national security posed by weapons of mass destruction (WMD) by: preventing the spread of WMD materials, technology, and expertise; detecting the proliferation of WMD worldwide; reversing the proliferation of nuclear weapons capabilities; and responding to WMD emergencies.

Program Overview

The President has made nonproliferation one of the nation's highest priorities. In FY 2001, the Administration continues to support an expanded, multi-agency threat reduction initiative for the Russian WMD complex. The Department of Energy is the preeminent U.S. agency providing operational, technological, and analytical support to international efforts to prevent the proliferation of WMD.

The **Nonproliferation and Verification, Research and Development** program is essential for stable long-term research and the development of unique science and technology competencies needed for the increasing demands of arms control, nonproliferation, domestic nuclear safeguards and security, energy security, and emergency management. Current R&D efforts include the design, development, and production of operational sensor systems needed for: early detection of indigenous WMD production; treaty monitoring; nuclear

weapon and chemical and biological weapon proliferation detection; and nuclear warhead dismantlement initiatives. Additional resources are needed to accelerate the integration of DOE-developed technologies into operational systems countering the increased potential threat of terrorist chemical and biological weapons.

The **Arms Control and Nonproliferation Program** pursues the following major priorities: 1) secure nuclear materials and expertise in Russia, the Newly Independent States (NIS), and the Baltics; 2) limit weapons-usable fissile materials worldwide; 3) enable transparent and irreversible nuclear reductions; 4) strengthen the nuclear nonproliferation regime; and 5) control nuclear exports. In the last several years, we have witnessed a dramatic growth in cooperation between the Department and the Russian Federation in programs designed to improve materials protection, control and accountability, and to prevent "brain drain."

The **International Nuclear Safety And Cooperation** program is reducing the risks at 65 Soviet-designed nuclear power reactors, especially in Russia and Ukraine. This is done by improving operational safety, by improving the physical condition of the plants, and by improving the safety infrastructure. The program provides assistance to help the host countries structure their nuclear industry to implement self-sustaining nuclear safety improvement programs capable of reaching internationally accepted safety practices. The program cooperates with International Nuclear Safety Centers in Russia, Ukraine, and Kazakhstan, and works with other international organizations such as the International Atomic Energy Agency. The program coordinates with other federal agencies and international organizations to support the shutdown and decommissioning of the Chornobyl nuclear power plant.

The **HEU Transparency Program** supports implementation of U.S. nonproliferation policy by providing confidence that material is derived from dismantled Russian weapons.

The **Long-Term Nonproliferation Program for Russia** will establish a series of new initiatives to respond to recognized, but previously unaddressed threats to U.S. national security. This expanded component will supplement on-going Departmental programs and establish new and accelerated solutions to the most serious dangers presented by the Russian nuclear weapons complex and civilian nuclear facilities.

The program, building upon successful on-going projects, will take advantage of new opportunities presented by the Russians to prevent the further accumulation of civilian plutonium at the Mayak facility by offering incentives, including a joint R&D program enhancing the proliferation resistance of nuclear technologies (this program will be co-managed with the DOE Office of Nuclear Energy, Science and Technology); the construction of a dry spent fuel storage facility at Mayak, and the exploration of permanent disposition options for spent nuclear fuel and high level waste in Russia (this program will be co-managed with the DOE Office of Civilian Radioactive Waste Management); accelerate the planned downsizing of the Russian nuclear weapons complex through the closure of facilities and consolidation of nuclear materials into fewer locations; and expand nuclear material protection activities to the most sensitive Russian Navy sites.

Budget Overview

The Administration continues to support the expanded, multi-agency threat reduction initiative in FY 2001. As cooperation increases with the Russian Federation and the Newly Independent States (NIS), additional budgetary resources are required to expedite the expansion and enhancement of NIS nonproliferation activities in critical areas such as:

plutonium and highly enriched uranium transparency; nuclear materials protection, control, and accounting; export control; and preventing the spread of WMD technology and expertise. This is particularly urgent in light of the impact that the collapse of the Russian economy has had on the Russian government's efforts to prevent leakages of nuclear materials and expertise. The FY 2001 Nonproliferation and National Security budget request increases to $682.6 million from $547.2 million in FY 2000, providing additional resources for: urgently required nonproliferation activities in the Russian Federation and the NIS; stemming the proliferation of chemical and biological weapons; and reducing the danger of nuclear smuggling and the associated potential for nuclear terrorism.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Nonproliferation and national security					
Nonproliferation and verification R&D	204,799	225,044	232,990	7,946	3.5%
Arms control	258,743	263,448	272,870	9,422	3.6%
Long-term Nonproliferation program for Russia	——	——	100,000	100,000	——
HEU transparency implementation	13,580	15,690	15,190	-500	-3.2%
International nuclear safety	79,989	15,000	20,000	5,000	33.3%
Program direction	28,060	28,055	41,550	13,495	48.1%
Subtotal, Nonproliferation and national security	585,171	547,237	682,600	135,363	24.7%
Use of prior year balances and other adjustments	-5,527	——	——	——	——
Total, Nonproliferation and national security	579,644	547,237	682,600	135,363	24.7%

FY 2001 Budget Request

The FY 2001 Other Nuclear Security Activities budget request for the Office of Nonproliferation and National Security is $682.6 million, a $135.4 million increase over FY 2000, primarily due to a new initiative focused on Russia.

Nonproliferation and Verification Research and Development – $233.0 million

This program applies unique science and technology development capabilities at the Department's national laboratories to reduce the threat to U.S. national security posed by WMD. This program's FY 2001 budget request of $233.0 million continues current R&D activities to assist in arms control treaty monitoring (including CTBT monitoring), detection of the proliferation of WMD, and the diversion of WMD materials. The FY 2001 request also includes $42.0 million to develop and demonstrate the technologies to prepare for and respond to potential terrorist use of **chemical and biological weapons (CBW)** domestically and $7.0 million to continue construction of the **Nonproliferation and International Security Center (NISC)** at LANL.

Arms Control and Nonproliferation – $272.9 million

Increases of $9.5 million to the **Arms Control and Nonproliferation** program's FY 2001 budget request, for a total request of $272.9 million, reflect expanded efforts to implement threat reduction and nonproliferation activities within the Russian Federation to improve materials protection, control, and accountability at every facility where at risk weapons-

usable nuclear materials are stored and to which they are transported. Funds are also provided to: expand conversion of Russian origin research reactors and further development of fabrication techniques of high density research and test reactor fuels; add export control efforts, including new fast-track negotiations on plutonium separation technologies and new studies on globalization of the U.S. nuclear industry; address an increasing number of export applications; add support for treaty and agreement negotiations; increase support for accelerated closure planning and implementation at two closed nuclear cities; and implement plans to stop all nuclear weapons assembly and disassembly in another closed nuclear city of the Russian Federation under the **Nuclear Cities Initiative**.

The **Arms Control and Nonproliferation Program** includes critical analytical, technical expertise, and operational support in the following areas:

- $2.0 million for **spent fuel activities with the Democratic Peoples Republic of Korea** (North Korea) to continue implementation of a nuclear spent fuel maintenance plan;
- $16.0 million for **spent fuel activities in Kazakhstan** to ensure the safe, secure storage of spent fuel at the BN-350 Reactor in Aktau and complete canning of the 2,400 spent fuel rods in the pool;
- $40.0 million for **Initiatives for Proliferation Prevention** ($22.5) and the **Nuclear Cities Initiative** ($17.5) to engage weapons scientists, engineers, and technicians in peaceful projects at their institutions;
- $149.9 million for **International Materials Protection, Control and Accounting** (including $5.0 million for International Emergency Cooperation) to: 1) continue to install and sustain MPC&A upgrades at expanding number of land and ship-based Russian Navy sites, ten closed nuclear sites, eight large fuel facilities, and 12 research reactor sites; 2) expand material conversion and consolidation efforts; 3) continue to establish federal-level Russian MPC&A infrastructure; and 4) continue operation of the communicated threat assessment program; and
- $65.0 million in funding to implement **other Arms Control and Nonproliferation** efforts such as the Nuclear Nonproliferation Treaty, Comprehensive Test Ban Treaty, Fissile Material Cutoff Treaty negotiations, Biological Weapons Convention, IAEA inspection of excess U.S. fissile materials at DOE facilities, Mutual Reciprocal Inspection agreements with Russia on plutonium and highly enriched uranium, and reciprocal dismantlement, transparency, and irreversibility agreements with Russia.

Highly Enriched Uranium (HEU) Transparency Implementation – $15.2 million

The HEU Transparency Implementation program is requesting $15.2 million in FY 2001. The request supports the implementation of United States nonproliferation policy by providing confidence that Russian Low Enriched Uranium (LEU) sold to the United States Enrichment Corporation (USEC) is derived from 30 metric tons of HEU removed from dismantled Russian nuclear weapons. The program implements and supports transparency monitoring activities in Russia and the U.S. at each country's uranium processing facilities

subject to the agreement; collects and analyzes monitoring and other information to determine overall confidence that the Russians are converting HEU from dismantled Russian nuclear weapons into LEU; conducts 24 special monitoring visits to Russian HEU conversion and blending facilities; maintains a permanent presence office in Russia; fabricates and physically places blend down monitoring devices on Russian processes; and provides assistance in the development and negotiation of new transparency measures.

International Nuclear Safety and Cooperation Program – $20.0 million

The International Nuclear Safety and Cooperation program is requesting $20.0 million in FY 2001 to continue to reduce risks at Soviet-designed nuclear power plants. Operational safety will be improved in Ukraine with non-destructive examination and safety maintenance technologies and training, and in Russia with intergranular stress corrosion cracking technologies. The physical condition of the plants will be improved with safety parameter display systems. The safety infrastructure will be improved by conducting rigorous safety analyses and using the results to improve safety at the plants.

Activities in support of shutdown and decommissioning of the Chornobyl nuclear power plant include: constructing a replacement heat plant to generate heat for decommissioning facilities, decommissioning planning for the site, and addressing socio-economic concerns.

Long-Term Nonproliferation Program for Russia – $100.0 million

The Long-Term Nonproliferation Program for Russia will establish a series of new initiatives to respond to recognized but previously unaddressed threats to U.S. national security. In FY 2001 these initiatives include funding of: $38.0 million to prevent the further accumulation of separated civil plutonium at Mayak; $5.0 million to expand MPC&A for plutonium stored at Mayak; $2.0 million to a develop plutonium registry at Mayak; $5.0 million to support research collaborations on long-term solutions for spent fuel and nuclear waste storage; $20.0 million for a joint R&D program to enhance the proliferation resistance of nuclear reactors and fuel cycles; $15.0 million to implement a new MPC&A strategy to simplify the nuclear security situation in Russia by consolidating material to fewer sites and fewer buildings, converting much of this material to low-enriched uranium, and to expand the MPC&A program into a new category of Russian facilities (Russian Navy nuclear sites); $10.0 million to accelerate closure of serial production facilities; $2.0 million to expand situation crisis center and emergency cooperation; and $3.0 million to initiate a Russian research reactor spent fuel acceptance program.

Program Direction – $41.6 million

The FY 2001 budget includes $41.6 million for the Program Direction account. This includes funding for all federal staffing, headquarters support service contracts, and the Working Capital Fund.

Highlights of Program Changes ($ in millions)

Research and Development ***(FY 2000 $225.0; FY 2001 $233.0)*** **+$8.0**

The FY 2001 request provides an additional: $2.1 million for **Chemical and Biological** Nonproliferation to continue the development of technologies urgently needed by domestic emergency personnel responding to the increased threat of terrorist use of chemical and biological weapons; $1.0 million for the Nonproliferation and International Security Center (NISC) construction project, to maintain the construction plan as scheduled and avoid cost

increases; $1.6 million in Proliferation Detection for remote effluent and physical detection and enabling technologies; and $3.3 million to restore previously planned work in Deterring Proliferation and Nuclear Explosion Monitoring.

Arms Control and Nonproliferation *(FY 2000 $263.4; FY 2001 $272.9)* **+$9.5**

The increase in Arms Control and Nonproliferation reflects:

- expanded activity of converting Russian origin research reactors and further development of fabrication techniques of high density research and test reactor fuels under the **RERTR** program *(FY 2000 $5.5 million; FY 2001 $5.8 million; +$0.3 million)*;
- increased measures to assist Kazakhstan in meeting long-term security and storage requirements for plutonium-bearing spent fuel located at the **Aktau Breeder Reactor** *(FY 2000 $15.5 million; FY 2001 $16.0 million; +$0.5 million)*;
- increased funding for the **Nuclear Cities Initiative** to cooperate with MINATOM, commercial entities, and local and state governments to create civilian ventures in Russia's formerly closed nuclear cities *(FY 2000 $7.5 million; FY 2001 $17.5 million; +$10.0 million)*;
- increased **International Materials Protection, Control and Accounting** efforts with the Russian Navy and expansion of material conversion and consolidation efforts *(FY 2000 $149.6 million; FY 2001 $149.9 million; +$0.3 million)*;
- additional **Export Control** efforts including new fast-track negotiations on plutonium separation technologies and new studies on globalization of the U.S. nuclear industries, and to address an increasing number of export applications *(FY 2000 $13.2 million; FY 2001 $14.1 million; +$0.9 million)*;
- additional support for negotiations of the Nuclear Nonproliferation Treaty, Comprehensive Test Ban Treaty, Fissile Material Cutoff Treaty, Chemical Weapons Convention, and Biological Weapons Convention under the **Treaties and Agreements** program *(FY 2000 $3.1 million; FY 2001 $3.2 million;+$0.1 million)*; and
- a reduction to **other Arms Control and Nonproliferation** program areas in order to partially fund the increases shown *(FY 2000 $69.0 million; FY 2001 $66.4 million; -$2.6 million)*.

International Nuclear Safety and Cooperation Program *(FY 2000 $15.0; FY 2001 $20.0)* **+5.0**

The increase in the FY 2001 request provides for safety parameter display systems for the Ignalina and Novovoronezh nuclear power plants in Lithuania and Russia, respectively, and for operational safety improvements at plants in Ukraine.

Long-Term Nonproliferation Program For Russia *(FY 2000 $0.0; FY 2001 $100.0)* **+$100.0**

The FY 2001 request includes an increase of $100.0 million to establish a series of new initiatives to respond to recognized but previously unaddressed threats to U.S. national

security. This expanded component will supplement on-going Departmental programs and establish new and accelerated solutions to the most serious dangers presented by the Russian nuclear weapons complex and civilian nuclear facilities.

Program Direction ***(FY 2000 $28.1; FY 2001 $41.6)*** **+$13.5**

The increase supports an additional 68 federal FTEs. The plan is to federalize existing functions, hire additional FTEs to perform critical functions, expand and restructure the operations at the Moscow Embassy, and transfer the Tokyo and Paris embassies' functions to program direction.

Fissile Materials Control and Disposition

Mission

In the aftermath of the Cold War, significant quantities of weapons-usable fissile materials (primarily plutonium and highly enriched uranium) are now surplus to national defense needs both in the U.S. and Russia. The danger exists not only in the potential for proliferation of nuclear weapons, but also in the potential for environmental, safety, and health consequences if these materials are not properly managed. The Department of Energy's **Office of Fissile Materials Disposition** is responsible for implementing a path forward to store and dispose of U.S. weapons-usable fissile materials and provide key negotiation and technical support to attain reciprocal actions for the disposition of surplus Russian plutonium. The efforts undertaken by the Office of Fissile Materials Disposition will reduce the number of sites where surplus weapons-usable materials are stored, permanently dispose of the nation's surplus plutonium and uranium, and obtain reciprocal action for the disposition of Russian plutonium.

Program Overview

In accordance with a January 2000 Record of Decision covering the storage and disposition of surplus weapons-usable fissile materials, the Department is proceeding with a hybrid plutonium disposition strategy that includes immobilization of approximately 17 metric tons (MT) of surplus plutonium with ceramic material and burning up to 33 MT of surplus plutonium as mixed oxide (MOX) fuel in existing domestic commercial reactors. The surplus plutonium disposition facilities will be located at the Savannah River Site in Aiken, South Carolina.

In accordance with a July 1996 Record of Decision covering the disposition of surplus highly enriched uranium (HEU), the Department is continuing to disposition as much HEU as possible by down-blending with other uranium materials to produce commercially-usable low enriched uranium. The remaining surplus HEU, unsuitable for commercial use, can be disposed of as waste without down-blending.

The Department is working with Russia on programs to facilitate the disposition of Russian plutonium. Negotiations are currently underway and a bilateral agreement is expected to be in place for the disposition of surplus Russian plutonium in the spring of 2000. The technological approach and facilities to be constructed will be outlined in the agreement.

Budget Overview

The FY 2001 budget request for the Fissile Materials Disposition program is $223.4 million, approximately 11 percent over the FY 2000 funding level. The FY 2001 request supports continuing U.S. surplus materials disposition activities at the FY 2000 level; starting design of the **Immobilization and Associated Processing Facility**; incorporating aqueous processing in the design of the **MOX Fuel Fabrication Facility**; and increasing

FTEs in the field to provide oversight of three plutonium disposition facilities to be located at the Savannah River Site.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Fissile materials control and disposition					
Fissile materials control and disposition	196,122	194,330	213,517	19,187	9.9%
Program direction	4,588	7,343	9,918	2,575	35.1%
Subtotal, Fissile materials control and disposition	200,710	201,673	223,435	21,762	10.8%
Use of prior year balances & other adjustments	-1,469	—	—	—	—
Total, Fissile materials control and disposition	199,241	201,673	223,435	21,762	10.8%
Russian plutonium disposition					
Russian plutonium disposition	200,000	—	—	—	—
Use of prior year balances & other adjustments	—	-49,000	—	49,000	100.0%
Total, Russian plutonium disposition	200,000	-49,000	—	49,000	100.0%

Congress provided $200 million in a FY 1999 emergency supplemental appropriation for Russian plutonium disposition. $49 million is being used as a FY 2000 offset for use of prior year balances. The FY 2001 budget requests an advance appropriation of $49 million to become available in FY 2004. The FY 2000 supplemental request also defers the use of $40 million of the Russian plutonium disposition funds until FY 2003. This would restore funding for Russian plutonium disposition to $200 million.

FY 2001 Budget Request

The request of $223.4 million represents an increase of $21.7 million above the FY 2000 appropriation, which is an 11 percent increase. The FY 2001 funding level will allow the program to proceed with the design of key U.S. surplus plutonium disposition facilities by initiating design for the **Immobilization and Associated Processing Facility** *(FY 2000 $0.0; FY 2001 $3.0)*, continue design for the **Pit Disassembly and Conversion Facility** *(FY 2000 $18.8; FY 2001 $20.0)* and the **Mixed Oxide Fuel Fabrication Facility** *(FY 2000 $12.4; FY 2001 $15.0)*.

The U.S. surplus plutonium disposition program will continue the process development and testing of disposition technologies such as the plutonium pit disassembly and conversion prototype system, lead assemblies to test MOX fuel fabrication and irradiation, and formulation of plutonium in ceramic materials required for immobilization. The program will continue to disposition surplus HEU by transferring the material to the United States Enrichment Corporation (USEC) for down blending to low enriched uranium for sale and subsequent use in commercial nuclear reactors; implementing an interagency agreement with TVA for disposition of 33 MT of off-specification HEU by blend-down and irradiation in TVA reactors; and begin preparation for the blend-down and sale of 10 MT of HEU currently under IAEA safeguards.

The Russian surplus plutonium disposition program will proceed with disposition activities in accordance with a bilateral agreement and the President's FY 2000 Expanded Threat Reduction (ETRI) initiative. Activities include U.S./Russian small scale tests and demonstrations on Russian plutonium technologies; advance reactor technology design and fuel qualification; and implementation of a U.S./Russian accord which is expected to include a plutonium conversion facility, a MOX fuel fabrication facility, and modification of existing reactors in Russia.

Also note, the congress provided $200.0 million in a FY 1999 Emergency Supplemental Appropriation for Russian plutonium disposition. Of that, $49.0 million is being used as a FY 2000 offset for use of prior year balances. The FY 2001 budget requests an advance appropriation of $49.0 million to become available in FY 2004. DOE will also submit a FY 2000 Supplemental Request which defers the use of $40.0 million of the Russian plutonium disposition funds until FY 2003. This would restore funding for Russian plutonium disposition to $200.0 million, over time.

Highlights of Program Changes ($ in millions)

Fissile Materials Disposition ***(FY 2000 $201.7; FY 2001 $223.4)*** **+$21.7**

U.S. surplus plutonium disposition activities increase primarily for the MOX lead test assembly activities, which is partially offset by a reduction in completion of uranium-233 disposition analyses. +$2.2

Start design of the **Immobilization and Associated Processing Facility** and incorporate aqueous processing in the design of the **MOX Fuel Fabrication Facility**. +$6.9

- Russian surplus plutonium disposition activities increase for advanced gas reactor work, VVER-1000 reactor fuel qualification, and oversight of work in Russia as defined in a bilateral agreement. +$10.0
- Increase for eight additional FTEs in FY 2001, funding to maintain 11 FTEs funded with prior year balances in FY 2000 (over the base request of 39 FTEs). Of the eight additional FTEs, five are in the field for oversight and project management of three plutonium disposition facilities and Russian activities. +$2.6

Naval Reactors

Mission

The Office of Naval Reactors' mission is to provide the Navy with safe, long-lived, militarily-effective nuclear propulsion plants in keeping with the nation's defense requirements, and to ensure their continued safe and reliable operation.

Program Overview

The program's responsibility extends to all aspects of naval nuclear propulsion — from technology development through reactor operations to ultimately reactor plant disposal. These efforts are critical to the continued success of the numerous reactors operating in submarines and surface ships, which comprise more than 40 percent of major Navy combatants. The program will also develop the reactor plants for the VIRGINIA class submarine and a planned new aircraft carrier, CVNX. Naval Reactors is responsible for more reactors than the entire U.S. commercial nuclear power generating industry and almost as many reactors as the next two largest commercial nuclear power generating nations in the world combined (France and Japan).

The program will maintain an integrated, comprehensive, and far-sighted analytical, developmental, and testing effort for existing and future reactor plants. This will be accomplished by: continuously testing, verifying, and refining reactor technology, and integrating new technologies and techniques into existing system and component designs to improve overall reactor plant performance, reliability, and longevity; rigorously testing materials, fuel, cores, components, and systems; and developing simplified, more affordable reactors with improved power capabilities, increased endurance, and added dependability.

These continuing development efforts are yielding greater capabilities. Major efforts for the near future include upgrades to existing components and equipment to help extend operating lifetimes and improve overall reactor plant performance; development of the reactor for the Navy's new CVNX aircraft carrier; and development/testing of the next generation reactor components and systems for the Navy's new VIRGINIA class attack submarine, including the first designed life-of-the-ship core, which will obviate the need for expensive refuelings; and the development of a new concept steam generator, which should greatly reduce corrosion concerns.

Budget Overview

The program's cost-saving initiatives led to shutting down six of the eight land-based test/research and development prototype plants. Work in this budget includes inactivating and laying up the shut down plants to place them in an environmentally benign state pending full dismantlement at some future date.

The FY 2001 budget request for the Naval Reactors program reflects the above described activities. Naval Reactors' major priorities include: 1) supporting the current operating fleet (location of the majority of the funds); 2) continued VIRGINIA class submarine plant development and testing work, 93 percent complete by the end of FY 2001; 3) continue full-scale development and testing work for the CVNX aircraft carrier plant; and 4) inactivating five shutdown prototypes.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2000 vs. FY 2001	
Naval reactors					
Naval reactors development	650,089	654,525	656,200	1,675	0.3%
Program direction	20,100	20,600	21,400	800	3.9%
Subtotal, Naval reactors	670,189	675,125	677,600	2,475	0.4%
Use of prior year balances & other adjustments	-4,049	——	——	——	——
Total, Naval reactors	666,140	675,125	677,600	2,475	0.4%

FY 2001 Budget Request

The FY 2001 Other Defense Activities budget request for Naval Reactors is $677.6 million. The budget request represents the amount needed for the following efforts:

- Conduct planned development, testing, and evaluation in the areas of nuclear physics, steam generators, instrumentation and control, materials, reactor and reactor plant design, and manufacturing and inspection methods to ensure reactor plant service life meets Navy goals for extended warship operation: 50 years for

aircraft carriers, 40 years for strategic submarines, and 30 years for attack submarines. Complete scheduled reactor and reactor plant analyses and improve analysis methods improvements in the areas of nuclear physics, reactor configuration and design, analytical modeling, and thermal hydraulics to ensure the safety and reliability of the reactor plants in the Navy's nuclear powered warships so they can fulfill their national defense mission.

- Accomplish planned core and reactor component/system design and technology development efforts to support the Navy's acoustic requirements.
- Maintain a utilization factor of at least 90 percent for prototype plants, ensuring their availability for scheduled testing, training, and servicing needs.
- Meet FY 2001 cost schedule goals to safely and responsibly inactivate shutdown land-based reactor plants in support of the program's and Department's environmental cleanup goals.
- Maintain outstanding environmental performance through radiological, environmental, and safety monitoring; and continue cleanup of program facilities.
- Continue detailed design work for the CVNX aircraft carrier plant.
- Complete 93% of VIRGINIA Class Attack submarine development and testing work by the end of 2001.

Highlights of Program Changes ($ in millions)

Reactor Technology & Analysis ***(FY 2000 $196.0; FY 2001 $217.0)*** **+$21.0**

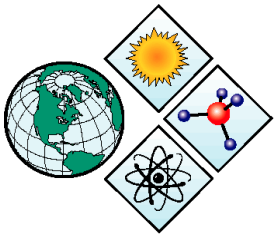
FY 2001 supports stepped-up development work for core and control drive mechanism equipment for the new aircraft carrier reactor.

Plant Technology ***(FY 2000 $111.0; FY 2001 $118.0)*** **+$7.0**

Change due primarily to work needed to develop CVNX steam generator and instrumentation equipment design.

Evaluation and Servicing ***(FY 2000 $162.0 FY 2001 $134.0)*** **-$15.0**

Reduced requirement reflects completion of A1W defueling at Naval Reactors Facility, Idaho and Windsor site inactivation reaching its final phase.



Other Defense Activities

Mission

The Other Defense Activities appropriations account includes a variety of defense-related programs managed by different DOE organizations. The Offices of Intelligence, Counterintelligence, Worker and Community Transition, Security and Emergency Operations, and Independent Oversight and Performance Assurance are funded completely by this appropriation. In addition, this account provides funding for the national security related activities of the Office of Environment, Safety and Health and the Office of Hearings and Appeals.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Other Defense Activities					
Intelligence	36,059	34,927	38,059	3,132	9.0%
Counterintelligence	22,541	37,421	45,200	7,779	20.8%
Security and emergency operations	267,443	292,151	340,376	48,225	16.5%
Independent oversight and performance assurance	9,633	13,038	14,937	1,899	14.6%
Environment, safety & health	97,358	99,760	109,050	9,290	9.3%
Worker and community transition	29,900	24,012	24,500	488	2.0%
Russian uranium disposition	325,000	——	——	——	——
Office of hearings and appeals	2,400	2,989	3,000	11	0.4%
Subtotal, Other Defense Activities	790,334	504,298	575,122	70,824	14.0%
Use of prior year balances & other adjustments	-26,711	-38,000	-20,000	18,000	47.4%
Total, Other Defense Activities	763,623	466,298	555,122	88,824	19.0%

Security and Emergency Operations

Mission

The Office of Security and Emergency Operations (SO) develops, promulgates, and oversees the implementation of all policy to ensure: the security of the Department's nuclear weapons and materials, facilities, and information assets; the protection of government and private sector energy-related assets; cyber-security; oversees emergency operations functions throughout DOE's complex; and oversees all security-related functions in the Department.

Program Overview

The Office of Security and Emergency Operations (SO), through the Office of Security Affairs, directs Department-wide safeguards and security and classification/declassification programs. The Office establishes overall security policy for DOE, including physical and personnel security, information security, and nuclear material control and accountability. Additionally, the Office develops policy and oversees implementation of procedures for the security of classified information, work associated with weapons development and special nuclear materials, and protection of facilities and installations within the Department. The Office also develops and provides policy and procedures for the classification and declassification of nuclear national security information related to Departmental programs and operations. The Office prepares an annual report to the Secretary and to the President on the status of Safeguards and Security based, in part, on information provided by the Office of the Independent Oversight and Performance Assurance (OA).

The **Office of Critical Infrastructure Protection (OCIP)** within SO directs Department-wide energy sector critical infrastructure protection activities. The Office manages Departmental activities that support DOE's role as the lead agency for government interaction with the nation's energy sectors regarding critical infrastructure protection, develops and manages the critical infrastructure protection R&D program, and leads and coordinates Departmental efforts to work with industry, state, and local governments, and national and international entities, in accordance with Presidential Decision Directive 63.

The **Office of Foreign Visits and Assignments Policy** within SO acts as a central accounting center to track and analyze the details of all foreign visits and assignments for all DOE facilities to ensure that these are conducted in a secure manner. The Office ensures that all visitors from outside the United States and all non-citizens working on contracts with the Department have appropriate checks and approvals for visiting all DOE facilities.

The **Office of Plutonium, Uranium and Special Material Inventory** within SO is responsible for all special nuclear material throughout the entire Department of Energy complex. The Office provides regular reports to the Secretary on all special nuclear material accounting and provides complete and reliable information on the most sensitive DOE fissile material in the domestic inventory as well as material transferred abroad.

The **Office of Emergency Operations** serves as the Department’s single point of contact and control for all emergency management activities; develops and issues all policy, procedures, and guidance; and oversees implementation of the Department’s Emergency Management System. The Office administers and directs the programs of DOE’s emergency response operations to ensure their availability and viability in responding to nuclear and radiological emergencies within the U.S. and aboard.

The **Office of Chief Information Officer (CIO)** defines and implements policies, procedures, and guidelines to ensure economical and effective management of information resources in support of the Department’s mission and objectives. The CIO, is responsible for all classified and unclassified cyber-security functions in the Department and for developing policy and overseeing DOE cyber-security. The CIO develops and implements programs to ensure computer security procedures and controls, and the protection of networks, computers, and workstations.

Budget Overview

The FY 2001 budget request for SO programs is $340.4 million, $48.2 million higher than the FY 2000 funding level. The majority of this increase is to fund additional requirements within the Program Direction account, mostly related to staffing increases and cyber-security issues within the Office of the CIO.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Security and emergency operations					
Nuclear safeguards and security	66,063	90,025	124,409	34,384	38.2%
Security investigations	30,000	32,664	33,000	336	1.0%
Emergency management	92,200	87,665	93,600	5,935	6.8%
Program direction	79,180	81,797	89,367	7,570	9.3%
Subtotal, Security and emergency operations	267,443	292,151	340,376	48,225	16.5%
Use of prior year balances & other adjustments	-21,821	-28,000	-20,000	8,000	28.6%
Total, Security and emergency operations	245,622	264,151	320,376	56,225	21.3%

FY 2001 Budget Request

The FY 2001 budget level of $340.4 million supports the following major program activities:

Nuclear Safeguards and Security – $124.4 million

The FY 2001 request of $124.4 million will ensure the national security of the United States by assuring the effective, cost-efficient protection of DOE's nuclear weapons, nuclear materials, classified information, and facilities against theft, sabotage, espionage, and terrorist activity. The Safeguards and Securities budget covers several activities that are vital to the Department including the Nonproliferation and National Security Institute (NNSI), Information Security, Security Education Briefing and Awareness, Personnel Security, Critical Infrastructure Protection Program, Cyber-Security, Material Control and Accountability, and Classification/Declassification. A Supplemental Request proposes increasing the FY 2000 budget by $4.0 million for cyber-security activities.

Security Investigations – $33.0 million

The FY 2001 Security Investigations request of $33.0 million would support the common defense and security of the United States by ensuring that only appropriate personnel are granted access to classified information, special nuclear material, or occupy sensitive positions. This would include investigations done by the Federal Bureau of Investigations (FBI) and the Office of Personnel Management (OPM).

Departmental programs will offset $20.0 million for security investigations for contractor and other non-federal employees at the Field Offices.

Emergency Management – $93.6 million

The FY 2001 request of $93.6 million ensures an integrated Departmental response to all emergencies and assessing the credibility of threats and smuggling activities.

Program Direction – $89.4 million

The FY 2001 request of $89.4 million will provide the salaries, benefits, travel, support services, and related expenses associated with the overall management, direction, and administration of the Nuclear Safeguards and Security program, the National Nonproliferation Security Institute, the Emergency Management program, the Office of the Chief Information Officer, the Plutonium, Uranium, and Special Material Inventory program, the Office of Foreign Visits and Assignments, and the Critical Infrastructure Program. A Supplemental Request proposes increasing the FY 2000 program direction budget by $4.0 million to increase staffing for the program.

Highlights of Program Changes ($ in millions)

Nuclear Safeguards and Security *(FY 2000 $90.0; FY 2001 $124.4)* **+$34.4**

The requested funding increase includes $17.0 million for policy, planning, education, training and awareness, operations, and technical capability for cyber-security; an increase of $4.2 million for the classification/declassification program; an increase of $10.9 million in the critical infrastructure protection program; and a net increase of $2.3 million for safeguards and security (the result of an increase of $3.9 million in nuclear biological and chemical weapons protection and detection equipment and training - and a decrease of $1.4 million in the technology development program, and other minor decreases totaling $0.2 million).

Security Investigations *(FY 2000 $32.7; FY 2001 $33.0)* **+$0.3**

The requested funding increase maintains the FY 2000 level of security investigation activity.

Emergency Management *(FY 2000 $87.7; FY 2001 $93.6)* **+$5.9**

The request restores critical funding for the Radiological/Nuclear Accident Response program to the level requested in FY 2000.

Program Direction *(FY 2000 $81.8; FY 2001 $89.4)* **+$7.6**

The requested increase in funds would provide additional staff and their associated costs (including inflation) to establish the new Office of Security and Emergency Operations.

Independent Oversight and Performance Assurance

Mission

The mission of the **Office of Independent Oversight and Performance Assurance** is to provide the Secretary of Energy and the congress with an independent assessment of the effectiveness of the Department's safeguards and security and emergency management policies and implementation. The Office is the exclusive focal point for DOE headquarters onsite inspections of Departmental sites in all areas of safeguards and security, cyber-security, and emergency management.

Program Overview

The objective of the Independent Oversight and Performance Assurance program is to ensure that the Department is protecting the critical security interests of our nation. The Department must ensure physical protection of special nuclear material; maintain accountability of special nuclear materials; protect classified and sensitive information;

provide personnel security; oversee foreign visitors; and oversee emergency planning, preparations, operations, and responses. The program's objectives are achieved by conducting comprehensive, independent oversight activities at DOE facilities that assess the effectiveness of safeguards and security, cyber-security, emergency management programs, and other critical functions as directed by the Secretary. These evaluations provide the Secretary with validated appraisals of the effectiveness of DOE policies and their implementation, and promote constructive change in the Department's safeguards and security and emergency management programs.

Budget Overview

The FY 2001 request for Independent Oversight and Performance Assurance is $14.9 million. Overall, the FY 2001 request is $1.9 million, or 15 percent higher than the FY 2000 appropriation.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Independent oversight and performance assurance					
Independent oversight and performance assurance	6,000	7,301	——	-7,301	-100.0%
Program direction	3,633	5,737	14,937	9,200	160.4%
Total, Independent oversight and performance assurance	9,633	13,038	14,937	1,899	14.6%

FY 2001 Budget Request

The FY 2001 budget request for Independent Oversight and Performance Assessment addresses near-term needs to improve safeguards and security and emergency management functions throughout the Department. The requested funds would support the resources necessary to perform the following:

- Significantly increase the frequency of inspections.
- Dramatically increase independent oversight activity in the cyber-security arena, including establishing a new function dedicated solely to cyber-security reviews, unannounced inspections, offsite monitoring of Internet security, and controlled attempts to penetrate security firewalls.
- Support a new oversight function focused exclusively on overseeing and assessing emergency management programs.

Highlights of Program Changes ($ in millions)

Independent Oversight and Performance Assurance *(FY 2000 $13.0; FY 2001 $14.9)* **+$1.9**

- Conduct safeguards and security evaluations at 20 major DOE sites to independently assess the status of programs and establish a baseline of findings to track and measure improvement at sites throughout the Department.
- Perform continuous cyber-security inspections and no-notice reviews at 14 major DOE sites to improve oversight and establish a baseline of findings to track and measure improvement at sites throughout the Department.

- Provide for the dedicated oversight of emergency management issues at DOE Headquarters and 15 major DOE sites.
- Conduct special DOE complex-wide reviews of personnel security, material control and accountability, and foreign visits and assignment programs to determine their effectiveness, track correctives actions, and assist in measuring improvement.

Intelligence

Mission

The **Office of Intelligence**'s mission is to provide the Department, other U.S. government policy makers, and the Intelligence Community with timely, accurate, high impact foreign intelligence analyses including support to counterintelligence; to provide quick-turnaround, specialized technology applications, and operational support to the intelligence, special operations, and law enforcement communities; and to ensure that the Department's technical, analytical, and research expertise is made available to the Intelligence Community in accordance with Executive Order 12333, "United States Intelligence Activities." The Office of Intelligence is included in the Corporate Management business line of the DOE Strategic Plan.

Program Overview

The Intelligence Program supports the national security of the United States and has a direct impact on the policy making process by providing actionable intelligence and/or technical support to intelligence operations that either reaffirms or amends existing policy, or initiates new policy actions. The Department's Intelligence Program serves the following core policy areas: nuclear nonproliferation and weapons; science and technology (S&T); energy security; nuclear energy, safety, and waste; and the development of specialized technology applications and operational support to meet national security missions.

The Department traces its presence in the Intelligence Community to July 1947 when the National Intelligence Authority recognized that the Atomic Energy Commission (AEC) had an appropriate foreign intelligence role and authorized AEC representation on the Intelligence Advisory Board. Following enactment of the National Security Act of 1947, the AEC's intelligence role was affirmed by National Security Council Intelligence Directive No. 1 of December 12, 1947. The Energy Reorganization Act of 1974 transferred the AEC's intelligence responsibilities to the Energy Research and Development Administration. They were subsequently transferred to the Department of Energy by the Department of Energy Organization Act of 1977.

Executive Order 12333, ''United States Intelligence Activities,'' sets forth the Department's major intelligence responsibilities. It directs the Department to provide expert technical, analytical, and research capability to the Intelligence Community; to formulate intelligence collection and analysis requirements where the expert capability of the Department can contribute; to produce and disseminate foreign intelligence necessary for the Secretary of Energy's responsibilities; and to participate with the Department of State in overtly collecting information with respect to foreign energy matters. The Nuclear Non-Proliferation Act of 1978 greatly expanded the proliferation-related responsibilities assigned to the Department by the Atomic Energy Act of 1954 and the Department of Energy Organization Act of 1977. Funds provide technical and analytical intelligence support to U.S. efforts to: improve nuclear materials protection, control, and accountability

in the former Soviet Union; assist in the safe and secure dismantlement of former Soviet nuclear weapons; conclude a Fissile Materials Cut-off Treaty and verify foreign compliance with international treaties in the nuclear arena; limit and redirect rogue nations nuclear weapons programs; help identify low probability/high impact scenarios in worldwide nuclear proliferation and weapons development; facilitate the application of DOE laboratory expertise to Intelligence Community near-term operational requirements; and develop specialized technology applications and provide technical expertise in support of response operations.

Budget Overview

The FY 2001 budget request is $38.1 million, a $3.1 million or a nine percent increase over the FY 2000 comparable amount. Of this increase, $2.0 million will provide for the design of a new sensitive compartmented information facility at Lawrence Livermore National Laboratory. The remaining amount, $1.1 million, will be used to augment existing intelligence activities at DOE sites.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Intelligence	36,059	34,927	38,059	3,132	9.0%

FY 2001 Budget Request

The FY 2001 budget request will provide analysis and reports on the status and direction of nuclear weapons programs of established proliferant nations; countries engaged in the supply of nuclear technology, equipment, and material to proliferant programs; limiting Iraq's ability to reconstitute its nuclear weapons program; limiting Iran's preliminary attempts at nuclear weapons capability; the foreign economic threat to U.S. energy resources and U.S. energy security; and the impact of changes in global energy markets on U.S. industrial competitiveness, while emphasizing opportunities and challenges to U.S. exports. The program will also analyze and report on the identification of foreign nuclear facilities posing risks to health and the environment and implications of a massive release of radiation; foreign technology plans, priorities, and commercial applications of leading edge technologies deemed critical by the Department and the Administration's Office of Science and Technology Policy; and foreign dual-use technologies in Russia and China.

In FY 2001, the Office of Intelligence will continue to: develop specialized technology applications to meet short-term national security requirements; assess international terrorism for DOE policy makers; provide a timely conduit for nuclear and nuclear-related intelligence assessments/reporting to support U.S. operations; provide on-call, rapid response technical capabilities to support specialized intelligence, as well as other government operational missions; and to produce and dispose of fissile material worldwide. The focus of fissile material monitoring worldwide will continue to be on the implications of the breakup of the former Soviet Union, its impact on the control and accountability of special nuclear material and nuclear weapons in its possession, and the security and control of nuclear weapons in Russia.

Counterintelligence

Mission

The **Office of Counterintelligence (CI)** is responsible for the oversight of the counterintelligence program throughout the DOE complex, including the Department's national laboratories. CI's primary objective is to enhance the protection of sensitive technologies, information, and expertise against foreign intelligence and terrorist attempts to acquire nuclear weapons information or advanced technologies from the Department's national laboratories.

Program Overview

The Department has long been, and remains, an attractive target for foreign intelligence services due to its substantial weapons and non-weapons related scientific expertise. DOE scientists interact with their international counterparts on a regular basis. These interactions often result in concerns of a counterintelligence nature. In order to protect against espionage and other threats, DOE established a Counterintelligence program. The 1998 Presidential Decision Directive/NSC-61 (PDD-61), which responded to earlier U.S. Counterintelligence Community groupings and General Accounting Office concerns, underlies the current program's objectives. The major programmatic components of the program include:

- Advising personnel of foreign intelligence operations with respect to DOE information, technology, and personnel, and identifying counterintelligence trends and concerns to target counterintelligence resources most effectively.
- Detecting and neutralizing foreign government and industrial intelligence activities directed at, or involving, DOE programs, facilities, technology, personnel, and information.
- Gathering information and conducting activities to protect against the cyber dimensions of espionage, other intelligence activities, sabotage, or assassinations that threaten DOE, its associated institutions, or the critical infrastructure of the U.S. energy sector.
- Conducting security and counterintelligence vetting of DOE personnel assigned to Special Access Programs, Personnel Assurance Programs, and Personnel Security and Assurance Programs.
- Reviewing adherence to PDD-61.

Budget Overview

The FY 2001 CI budget request is significantly higher than the FY 2000 Appropriation. As a matter of national security, the CI Program needs to be significantly improved. The FY 2001 budget request enables the Director of the Office of Counterintelligence to meet the requirements of Presidential Decision Directive 61 by ensuring the establishment and programmatic functionality of the Department's Counterintelligence analysis program; inspection program; training program; financial disclosure program; and polygraph program, as well as enhancing the Counterintelligence personnel at the Department's laboratories.

Other Defense Activities

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Counterintelligence	22,541	37,421	45,200	7,779	20.8%

FY 2001 Budget Request

The FY 2001 budget for the Office of Counterintelligence is $45.2 million. The FY 2001 budget provides for mission essential counterintelligence analyses, debriefings, training, information technology, and counterintelligence inspections throughout the DOE complex, all of which are necessary and mandated by PDD-61 for the Department to have an aggressive CI Program.

Highlights of Program Changes ($ in millions)

The $45.2 million program level will: 1) initiate a resident CI analysis program capable of ensuring the analytical expertise necessary for producing internal, critical threat assessments, as well as providing significant contributions to the Intelligence Community; 2) provide the necessary funding for the salaries and benefits, travel, training, and working capital fund charges for federal staff and specialized contractors in headquarters and the field to provide critical counterintelligence mission dedicated functions, particularly, debriefings, investigations, and threat assessments; and 3) continue to fully fund the existing CI personnel in the laboratories and bring on additional expertise, as needed, to address site specific counterintelligence issues. The requested funding allows the Director of CI to meet the requirements of PDD-61 by ensuring the establishment and programmatic functionality of DOE's CI analysis program; inspection program; training program; financial disclosure program; and polygraph program, as well as enhancing the CI personnel at the Department's laboratories.

Environment Safety & Health – Defense

Program Overview

The FY 2001 budget for the Other Defense Activities program of the **Office of Environment, Safety and Health** is $109.1 million, which is $19.3 million or 22 percent more than the FY 2000 comparable amount. Of the FY 2001 request, approximately seven percent is for Oversight, 48.5 percent is for Health Studies, 12.3 percent is for the Radiation Effects Research Foundation, 11.0 percent is for Gaseous Diffusion Plants, and 21.6 percent is for Program Direction.

The Other Defense Activities program of the Office of Environment, Safety and Health is discussed in this section and is concentrated in the following business functions – Oversight, Health Studies, the Radiation Effects Research Foundation (RERF), and Gaseous Diffusion Plants – as well as a portion of Environment, Safety and Health's Program Direction funding. In addition to the funding provided under this account, Environment, Safety and Health receives funding for non-defense related activities from the Energy Supply appropriation and for the Working Capital Fund.

The **Oversight** function provides a comprehensive understanding of the effectiveness, vulnerabilities, and trends of the Department's environment, safety, and health

performance. The funding supports the Independent Oversight program, the Price Anderson Enforcement program, and the work of the Departmental representative to the Defense Nuclear Facilities Safety Board. The primary goal of these programs is to promote constructive change in the Department's environment, safety, and health management programs through a continuous cycle of independent assessments, analysis, reports, and follow-up validation.

The **Health Studies** program promotes and assures the health of Department of Energy current and former workers and communities and supports continued efforts to understand the health effects of radiation on humans. It is comprised of four activities: Occupational Medicine, Public Health Activities, Epidemiologic Studies, and International Health Programs.

The **Radiation Effects Research Foundation (RERF)** was established to investigate the effects of radiation exposure on survivors of the atomic bombings of Hiroshima and Nagasaki. Funding for RERF is provided by the government of Japan, through the Ministry of Health and Welfare, and the U.S. government, through DOE. The objective of RERF is to collect data, for peaceful purposes, on the medical effects of radiation on humans and to provide the basis for establishing radiation protection standards and practices worldwide.

The **Gaseous Diffusion Plants** activity has been established in the Other Defense Activities appropriation to focus on the health concerns and issues of current and former contract workers.

The **Program Direction** account includes the salaries, benefits, and travel for a portion of the Office of Environment, Safety and Health staff.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Environment, safety and health					
Office of environment, safety and health (defense)	75,967	78,473	86,446	7,973	10.2%
Program direction	21,391	21,287	22,604	1,317	6.2%
Subtotal, Environment, safety and health	97,358	99,760	109,050	9,290	9.3%
Use of prior year balances and other adjustments	-2,108	-10,000	——	10,000	100.0%
Total, Environment, safety and health	95,250	89,760	109,050	19,290	21.5%

FY 2001 Budget Request

The Defense Environment, Safety and Health Oversight program is requesting $8.0 million in FY 2001, which is $2.8 million or 2.6 percent less than the FY 2000 comparable amount. It will conduct an ongoing program of environment, safety, and health inspections. The safeguards and security oversight function, transferred to the Office of Independent Oversight and Performance Assurance, is budgeted in the Other Defense Activities appropriation. The program will continue to promote safe work practices and performance through the course of independent assessments and reporting, will identify issues appropriate for the attention of senior managers, provide updates on the progress of

corrective actions, and ensure accidents are adequately investigated. The Enforcement program will continue to enforce nuclear safety rules under the Price-Anderson Amendments Act.

The Health Studies program is requesting $53.0 million in FY 2001, which is $4.0 million or eight percent higher than FY 2000. The Health Studies program will continue the Marshall Islands medical surveillance program, joint U.S.-Russian studies of radiation health effects, and epidemiological surveillance of DOE workers. In addition, the request supports the Public Health Activities conducted to assess the health of populations working or living near DOE sites. The increase reflects the Public Health Activities agenda. The FY 2001 request also fully supports the DOE former workers program, which provides occupational medical surveillance throughout the complex.

The Radiation Effects Research Foundation program is requesting $13.5 million in FY 2001, equivalent to the FY 2000 comparable level. The Radiation Effects Research Foundation will continue to monitor the effects of radiation resulting from the atomic bombings, and to promote the welfare of the atomic bomb survivors in conjunction with the Japanese government.

The **Gaseous Diffusion Plants** program is requesting $12.0 million in FY 2001 to address the environment, safety, and worker health concerns and issues pertaining to the operation of the plants.

The FY 2001 request provides $22.6 million in Program Direction funding, which is $1.3 million or six percent more than FY 2000. This funding provides for the salaries, benefits, and travel associated with 186 full-time-equivalents.

The performance objectives of the Defense Environment, Safety and Health programs are largely qualitative, rather than quantitative. The programs continually strive to provide excellent Department-wide environment, safety, and health services supported by a consistent, credible oversight process, preventing the recurrence of worker injuries and environmental damage, ensuring follow-up corrective actions, promoting high quality workplace medical services, and employing epidemiologic analysis to analyze dose-response relationships and the effect of exposures and site conditions on the health of workers and offsite populations. The success of these efforts will be measured, in part, by decreased rates of occupational injury or illness, downward trends in the number of accidents and environmental releases, significant reductions in environment, safety, health safeguards and security issues, and a decreased number of radiological exposures and safety violations.

Highlights of Program Changes ($ in millions)

Oversight *(FY 2000 $6.0; FY 2001 $8.0)* **+$2.0**

Increase in independent oversight of environment, safety, and health activities related to facility design and construction, privatization and guidance, and increased enforcement.

Health Studies *(FY 2000 $49.0; FY 2001 $53.0)* **+$4.0**

Increase reflects support for the Public Health Activities agenda through a Memorandum of Understanding with the Department of Health and Human Services.

Gaseous Diffusion Plants *(FY 2000 $0.0; FY 2001 $12.0)* **+$12.0**

Increase establishes a program to address the concerns raised by workers. Activities include focused investigations and expanded medical programs.

Program Direction ***(FY 2000 $21.3; FY 2001 $22.6)*** **+$1.3**

Increased funds for salaries and benefits based on pay raise adjustments are provided.

Worker and Community Transition

Mission

The **Office of Worker and Community Transition** was formed in September 1994 to ensure the fair treatment of workers and communities affected by changing Department of Energy missions. This program was established in accordance with Section 3161 of the Defense Authorization Act of 1993.

Program Overview

The Worker and Community Transition program supports contractor work force restructuring activities related to the defense mission, and provides local impact assistance to those communities affected by work force restructuring plans. The program also leads and manages the development of short and long-term programs and initiatives that identify assets that exceed current Department needs and are potentially available for sale, transfer, or reuse.

More specifically, the program provides overall coordination and final recommendation to the Secretary to approve work force restructuring plans. These activities ensure effective work force planning that identifies and retains critical skills, knowledge, and abilities, and provides appropriate public notice for work force restructuring. Strategies include providing preference to displaced workers for new hiring by the Department and providing retraining for the Environmental Restoration and Waste Management program or other employment opportunities. The program develops effective and efficient initiatives that limit involuntary layoffs and provides appropriate voluntary separation incentives, including severance enhancement, retraining assistance, outplacement assistance, relocation assistance, and extension of medical benefits. Consistent with Section 304 of the FY 1999 Energy and Water Development Appropriations Act, this program request will cover all enhanced worker benefits provided under Section 3161.

Additionally, the congress has identified this program as the only authorized source of funding for local impact assistance to communities affected by work force restructuring plans. This includes many sites that have transitioned from Defense Programs management to Environmental Restoration and Waste Management. The Worker and Community Transition program assists communities affected by Departmental work force changes by developing policies and facilitating assistance for such communities to perform economic transition activities.

The Office of Worker and Community Transition also has the responsibility for mitigating the worker transition actions at the United States Enrichment Corporation gaseous diffusion facilities at Paducah, Kentucky and Portsmouth, Ohio. The worker transition actions are expected to become a very significant part of the total worker transition program, particularly after the expiration of a Memorandum of Agreement on June 30, 2000.

Asset Management functions will continue to monitor the Pilot Project Program involving six pilot projects including the leasing of buildings and other facilities at Hanford and Savannah River, sale of heavy water at Savannah River, and the disposal of equipment and other personal property at Rocky Flats, in conjunction with the National Electronics Recycling Center at Oak Ridge. The Asset Management program will continue to monitor the disposition of expendable assets throughout the Department of Energy, providing guidance to both Program and Field Managers and a stimulus to regional and local economic development programs.

The program successfully managed the reduction of about 48,600 contractor personnel between FY 1993 and FY 1999. More than two thirds of separations to-date have been voluntary, with an average (including workers separated through attrition) separation cost of approximately $17,900 per position. When attrition is excluded, average separation costs have been approximately $24,500. Annual savings to-date from these reductions are estimated to exceed $3.4 billion in salaries and benefits.

Budget Overview

The Office of Worker and Community Transition will manage the Department's effort to reduce the size of the contractor work force and implement more efficient contract mechanisms, in parallel with future hiring. The Office is also developing workforce strategies that will facilitate early closure of Fernald, Mound, and Rocky Flats.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Worker and community transition					
Worker and community transition	26,000	20,525	21,500	975	4.8%
Program direction	3,900	3,487	3,000	-487	-14.0%
Subtotal, Worker and community transition	29,900	24,012	24,500	488	2.0%
Use of prior year balances & other adjustments	-1,698	——	——	——	——
Total, Worker and community transition	28,202	24,012	24,500	488	2.0%

Of the FY 2001 budget request, current estimates are that approximately 60 percent will fund work force restructuring requirements, 28 percent will provide community transition assistance, and 12 percent will fund program direction, which includes the role of asset management. If additional work force reductions are required, the portion necessary for work force enhanced benefits could increase with a corresponding reduction in funds available for community transition.

FY 2001 Budget Request

The FY 2001 budget request for the Worker and Community Transition program is $24.5 million. In FY 2001, the work force restructuring portion of the program is expected to be funded at $12.5 million. An important work force restructuring goal is to mitigate the impacts on displaced workers while humanely and cost-effectively managing the transition to a reduced work force that will better meet ongoing mission requirements.

In FY 2001, the community transition portion of the program is expected to be funded at $9.0 million. Community transition assistance mitigates the impacts on communities from

contractor work force restructuring at Department sites by supporting local community reuse organizations, to promote rapid and effective defense conversion with new private sector jobs for displaced workers and new businesses for the community. In FY 2001, the program direction portion which provides for the federal management and administrative personnel to carry out the Worker and Community Transition mission will be funded at $3.0 million. Within program direction, the leadership and management of the asset management program will be continued. The goal of the Asset Management Program is to assist senior management in headquarters and the field to identify assets no longer needed for currently funded projects and to establish the most appropriate disposition routes to encourage regional and local economic development programs.

Highlights of Program Changes ($ in millions)

Worker and Community Transition *(FY 2000 $24.0 ; FY 2001 $24.5)* **+$0.5**

The change is due to reductions taken in FY 2000 for contractor travel and a 0.38 percent rescission which are not included in the FY 2001 request.

Office of Hearings and Appeals

Mission

The **Office of Hearings and Appeals** (OHA) is responsible for all of the Department's adjudicatory processes, other than those administered by the Federal Energy Regulatory Commission. The goal of OHA is to issue prompt, high quality decisions that fairly and equitably resolve the matters that are brought before it.

Program Overview

OHA has jurisdiction over a wide variety of matters including: Freedom of Information Act and Privacy Act Appeals, evidentiary hearings to determine an employee's eligibility for a security clearance, appeals of initial agency decisions on whistle blower complaints, and requests for exception from DOE regulations and orders, such as reporting requirements to Departmental elements. Funding for this activity is being sought in Energy and Water Development appropriations. In FY 1999, OHA's whistle blower responsibilities were expanded through amendments to the regulations covering DOE's Contractor Employee Protection (Whistle blower) Program, which shift the responsibility for conducting investigations of whistle blower complaints and issuing initial agency decisions from the Office of the Inspector General to OHA.

Budget Overview

The FY 2001 budget request is level with the FY 2000 appropriation. This funding continues OHA's core activities to resolve all claims of adverse impact resulting from the operations of the Department.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Office of hearings and appeals	2,400	2,989	3,000	11	0.4%

FY 2001 Budget Request

The Office of Hearings and Appeals is seeking $3.0 million of new authority in Other Defense Activities to investigate and adjudicate whistle blower complaints and to consider appeals of other Departmental actions, including determinations issued under the Freedom of Information and Privacy Acts and adverse security clearance determinations. This request is in addition to a $2.0 million request for Interior funds to finance its oil overcharge activities (EPCA). Most expenses are related to its professional staff with Personnel Compensation and Benefits expenses equal to $2.4 million, and other related expenses equal to $0.5 million. Other related expenses are primarily provided within the Department's Working Capital Fund, and include rent, supplies, printing and communications, and information technology. In FY 2001, OHA expects to issue 230 high-quality determinations and make all of its decisions available on the Internet to interested persons, usually within one day of issuance.

Highlights of Program Changes ($ in millions)

Office of Hearings and Appeals *(FY 2000 $3.0; FY 2001 $3.0)* **+$0**

No change.

Energy Employee Compensation Initiative

Mission

The Energy Employee Compensation Initiative is proposed in FY 2001 to implement pending legislation to compensate eligible workers for occupational health hazards associated with work at DOE facilities.

Program Overview

The Administration has proposed legislation to establish an occupational illness compensation program for the Department of Energy's contract workers at its nuclear facilities. The bill has three parts, each addressing a specific group of workers eligible for compensation benefits:

- the Energy Employee's Beryllium Compensation Act addresses current and former DOE federal and contract workers who have beryllium disease. Eligible workers would receive reimbursement for the prospective medical costs associated with the illness and a portion of lost wages or they have the option of receiving a single, lump sum benefit of $100,000;
- the Paducah Employees' Exposure Compensation Act addresses Paducah, Kentucky employees exposed to highly radioactive materials;
- and a specific group of Oak Ridge, Tennessee employees determined by an independent panel of occupational physicians to have illnesses due to **workplace exposure**.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000
Energy employees compensation initiative				
Energy employees beryllium compensation fund .	——	——	12,800	12,800 ——
Energy employees pilot project	——	——	2,000	2,000 ——
Paducah employees exposure compensation fund	——	——	2,200	2,200 ——
Total, Energy employees compensation initiative	——	——	17,000	17,000 ——

FY 2001 Budget Request

The FY 2001 request for Energy Employee Compensation Initiative is $17.0 million.

Environmental Management

Mission

The mission of the **Office of Environmental Management** (EM) is to manage and safely clean up the legacy of contamination resulting from nearly fifty years of operating the nation's nuclear weapons production processes and federally-sponsored nuclear-related research.

Program Overview

The program manages the remediation of sites that were contaminated both through the activities of Defense programs and civilian programs. The sites contain large volumes of nuclear wastes that must be stored, treated, and disposed of safely; significant quantities of nuclear materials that must be stabilized and safeguarded; large areas of soil and groundwater that must be remediated; and thousands of contaminated facilities that must be decontaminated and decommissioned.

EM manages its efforts by defining specific projects. Most of these projects have a defined scope, schedule, and cost. Project summary information for each can be found in the Project Baseline Summary for that project.

Major environmental projects planned for FY 2001 include: continuing progress to close the Rocky Flats and Ohio sites by 2006; completing active cleanup at three EM sites; starting construction of the privatized facility for the vitrification of high-level waste at the Hanford Site; production of an additional 200 canisters of vitrified high-level waste at the Savannah River Site; making approximately 500 shipments of transuranic waste (TRU) to the Waste Isolation Pilot Plant; beginning to move spent nuclear fuel at the Hanford site into safer storage further away from the Columbia River; accelerating cleanup at the Paducah, Kentucky and Portsmouth, Ohio Gaseous Diffusion Plants; and continued investment in science, development, and application of new environmental technologies.

The presentation below describes projects in five separate accounts. They are: Defense Closure Projects; Defense Environmental Restoration and Waste Management; Defense Environmental Management Privatization; Non Defense Environmental Management, and Uranium Enrichment Decontamination and Decommissioning Fund.

Budget Overview

The FY 2001 request for Environmental Management includes $5,802.9 million in traditional budget authority and $515.0 million for privatization activities, for a total of $6,317.9 million. The traditional budget authority request is $140.4 million more than the FY 2000 level. The request for privatization is $326.7 million greater than the amount requested in FY 2000.

The budget request for FY 2001 consists of five appropriations: Defense Facilities Closure Projects ($1,082.3); Defense Environmental Restoration and Waste Management ($4,551.5); Defense Environmental Management Privatization ($515.0), Non-Defense Environmental Management ($286.0); and Uranium Enrichment

Decontamination and Decommissioning Fund ($303.0). The total request includes an offset of $420.0 million from the Defense Environmental Restoration and Waste Management appropriation into the Uranium Enrichment Decontamination and Decommissioning Fund, as well as $84.3 million in offsets from uncosted balances and the Dupont Pension at Savannah River.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Environmental Management					
Defense facilities closure projects	1,041,740	1,060,447	1,082,297	21,850	2.1%
Defense environmental restoration and waste management	4,351,850	4,464,982	4,635,844	170,862	3.8%
Defense environmental management privatization	260,357	232,282	540,092	307,810	132.5%
Non-defense environmental management	414,985	307,229	286,001	-21,228	-6.9%
Uranium enrichment decontamination and decommissioning fund	220,153	249,247	303,038	53,791	21.6%
Uranium enrichment D&D fund discretionary payments	-398,088	-420,000	-420,000	——	——
Subtotal, Environmental Management	5,890,997	5,894,187	6,427,272	533,085	9.0%
Use of prior year balances & other adjustments	-71,012	-43,477	-109,409	-65,932	-151.6%
Total, Environmental Management	5,819,985	5,850,710	6,317,863	467,153	8.0%

Defense Facilities Closure Projects

Program Overview

The Defense Facilities Closure Projects appropriation funds activities that will result in closure of particular sites by 2006. The sites are: Mound (OH), Ashtabula (OH), Battelle Columbus Laboratory (MO), Fernald (OH) and the Rocky Flats Environmental Technology Site (CO). After EM's cleanup mission is completed at these sites, no further Departmental mission is envisioned.

Budget Overview

The FY 2001 budget request of $1,082.3 million for the Defense Facilities Closure Projects appropriation is $21.9 million, or two percent above the comparable FY 2000 amount. The budget request consists of $417.6 million for the Ohio sites and $664.7 million for Rocky Flats.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Defense Facilities Closure Projects	1,041,740	1,060,447	1,082,297	21,850	2.1%

FY 2001 Budget Request

The FY 2001 request of $417.6 million for Ohio supports continued efforts in 25 projects at four major sites.

Under current plans, the **Ashtabula** site will be released for unrestricted use and returned to the RMI Company by FY 2005. In FY 2001, over 930 cubic meters of contaminated soil will be treated and three facilities will be decommissioned.

The **Columbus Environmental Management Project**'s West Jefferson site will be transferred to Battelle Laboratories for unrestricted use by FY 2005. In FY 2001, we will continue activities aimed at decontamination and remediation, reducing volumes of transuranic (TRU) waste, and we will start shipping remote-handled TRU waste to the Waste Isolation Pilot Plant (WIPP) in New Mexico.

At the **Fernald** site, the program's goal is to complete all remediation and place the site under institutional control by FY 2006. Key activities in FY 2001 include: continued safe shutdown of non-nuclear facilities; continued waste placement in the on-site disposal facility; continued efforts to restore the Great Miami Aquifer; continued disposition of low level waste (LLW) and mixed low level waste (MLLW); continued facility decontamination and decommissioning (D&D) and completing D&D at one complex; complete excavation of the Southern Waste Units; and continued base services such as safety and health, emergency management, fire protection, utilities operations, and security.

The **Mound Site** budget request supports site transfer to the City of Miamisburg by FY 2006. Activities in FY 2001 include: full scale efforts to decontaminate four major buildings comprising the tritium complex; deactivate six buildings; complete four assessments and contaminated building cleanups; continue base site-wide infrastructure service; and continue storage and/or disposition of TRU, LLW, hazardous, and sanitary waste.

The **Rocky Flats Environmental Technology Site** budget request supports 2006 as the closure date for Rocky Flats. Activities in FY 2001 include: continued D&D activities; continued operation of the Plutonium Stabilization and Packaging System; continued shipping of plutonium residues and special nuclear material off-site; providing site-wide landlord/infrastructure activities; and storing, treating, and disposing of TRU (at WIPP), MLLW, LLW, and hazardous waste off-site.

Highlights of Program Changes ($ in millions)

Defense Facilities Closure Projects *(FY 2000 $1,060.4; FY 2001 $1,082.3)* **+$21.9**

- Ohio *(FY 2000 $395.7; FY 2001 $417.6)* +$21.9
  - Increase at **Columbus Environmental Management Project** initiates decontamination operations at JN-1 High Bay on the West Jefferson Site, as well as initiates transuranic waste shipments.
  - Overall increase at **Fernald** continues safe shutdown of non-nuclear facilities; continues waste disposition and shipments of nuclear materials to Oak Ridge. Keeps Fernald on a closure path.
  - Decrease at **Mound** reflects completion of work on several projects; continues critical path support to the tritium complex; and accelerates deactivation, decontamination, and demolition activities.

Defense Environmental Restoration and Waste Management

Budget Overview

The FY 2001 budget request for Environmental Management activities within the Defense Environmental Restoration and Waste Management appropriation is $4,551.5 million, a $86.0 million or a two percent increase over the comparable amount for FY 2000.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Defense Environmental Restoration & Waste Management					
Site/project completion	1,043,102	958,469	970,951	12,482	1.3%
Post 2006 completion	2,716,518	2,938,294	3,108,457	170,163	5.8%
Science and technology	236,715	229,413	196,548	-32,865	-14.3%
Program direction	355,515	338,806	359,888	21,082	6.2%
Subtotal, Defense Environmental Restoration and Waste Management	4,351,850	4,464,982	4,635,844	170,862	3.8%
Use of prior year balances and other adjustments	-29,447	523	-84,317	-84,840	N/A
Total, Defense Environmental Restoration and Waste Management	4,322,403	4,465,505	4,551,527	86,022	1.9%

FY 2001 Budget Request

Site/Project Completion *(FY 2000 $958.5; FY 2001 $971.0)*

The request of $971.0 million is $3.6 million, or 0.4 percent more than the comparable FY 2000 amount.

At **Albuquerque** eight projects are supported with the FY 2001 request. Continuing activities include: grants and cooperative agreements; groundwater treatment and monitoring at Kansas City Plant, Pantex, and Pinellas; remediation at Pantex and Sandia, including the excavation of the Chemical Waste Landfill and the Classified Waste Landfill; annual payments for Pinellas post-contract medical, pension, and other contractor worker benefits; and the required potentially responsible party payment for Maxey Flats.

Idaho activities are undertaken in accordance with the *Idaho Settlement Agreement* and the *Federal Facilities Agreement and Consent Order*. The FY 2001 request supports 11 projects and allows significant milestone accomplishments toward the 2006 goal. Activities include: shipment of 1,160 cubic meters of TRU waste to WIPP; storing 63,718 cubic meters of TRU waste; and complete drainage of water from the CPP-603 fuel storage basins.

At **Oakland**, the majority of funding for activities for the Oakland Field Office have been moved to the Post 2006 account. The request supports work on the Decontamination and Waste Treatment Facility at Lawrence Livermore.

At **Richland,** activities are undertaken in accordance with the *Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement).* FY 2001 activities funded in seven projects include: start up of the plutonium bagless transfer and packaging system;

continued surveillance and maintenance activities to ensure safe operation of the associated facilities for the stored special nuclear materials; support for International Atomic Energy Agency non-proliferation activities at the **Plutonium Finishing Plant**; continued stabilization of plutonium nitrate solutions; continued limited contamination clean out and closure of B Cell; continued centralized program, project, and business management to plan, execute, and control the Facility Stabilization Project; and continued surveillance and maintenance activities to ensure safe operation of the **K Basins**, fuel conditioning facilities and equipment, and the canister storage building.

At the **Savannah River** site, seven projects are supported in FY 2001. Savannah River will continue: the stabilization of "at risk" nuclear materials in the **F and H Areas**; decontamination of a major laboratory facility; replacement of the F-Area tank farm service lines; and efforts to develop an alternative technology for the treatment and packaging of aluminum-based research reactor spent nuclear fuel. The FY 2001 funding will also initiate a highly enriched uranium **(HEU) Blend Down project** to provide the infrastructure to support the Office of Fissile Materials Disposition's Off-Specification Fuel Program and address DNFSB 94-1 requirements. It should be noted that construction of the Actinide Packaging and Storage Facility has been deferred to allow for a reevaluation this year of storage requirements in light of the new plutonium missions assigned to the site, options for using alternative facilities for packaging and storage, and associated funding estimates.

Post 2006 Completion ***(FY 2000 $2,938.3; FY2001 $3,108.5)***

The request of $3,108.5 million is a $134.8 million or a 4.5 percent increase over the comparable amount in FY 2000.

At **Albuquerque** the request supports seven projects including: storage, treatment, and disposal of MLLW and TRU waste; remediation of 43 release sites and the decommissioning of one facility; and the management of plutonium and beryllium sources.

At the **Carlsbad** area office, WIPP expects to receive approximately 500 contact-handled TRU waste shipments. In order to reduce costs, the program is relying on privatization of contact-handled and remote-handled TRU waste transportation services. Stakeholder and outreach efforts funded by the WIPP program include the Carlsbad Environmental Monitoring and Research Center, the Western Governors' Association, the Environmental Evaluation Group, and cooperative agreements with Native American Tribes and others.

At **Idaho,** the request supports 22 projects including: remediation efforts, including Pit 9; D&D activities, including the completion of two facilities; waste management activities; removal of 47 metric tons of heavy metal spent nuclear fuel to safer dry storage facilities; and the Foreign Research Reactor (FRR) Spent Nuclear Fuel Acceptance program. In addition to the funds provided, $1.5 million has been requested within the Cost of Work for Others Program within the Departmental Administration appropriation to support the Foreign Research Reactor Spent Nuclear Fuel Program.

At **Nevada** the FY 2001 request supports nine projects. Nevada will conduct characterization and remediation activities at contaminated soil sites on Tonopah Test Range, Nellis, and Nevada Test Site. Other activities include modeling of underground test areas; characterization, segregation, and repackaging of TRU/Mixed TRU; treatment, storage, and/or disposal of waste; and continuation of Agreements-In-Principle and grants.

At **Oakland**, six projects funded in FY 2001. Activities at the Lawrence Livermore National Laboratory include: completing remediation activities at sixteen release sites; continuing the treatment, storage, and disposal activities associated with TRU, MLLW, LLW, and hazardous waste; and continuing construction of the Decontamination and Waste Treatment Facility. At Separations Process Research Unit in New York, work will begin to develop a Resource Conservation and Recovery Act (RCRA) Facility Investigation Work Plan.

In FY 2001, the **Oak Ridge** request supports activities within 16 projects. Over 2,900 cubic meters of LLW and MLLW will be disposed, twelve remedial actions will be completed, and five facilities decommissioned.

At **Richland** in FY 2001, the EM program at Hanford supports 21 projects and includes: cleanup and safe disposal of surface contamination along the Columbia River; monitoring, mitigation, and remediation of chemical and radioactive contaminants that have migrated into the vadose zone and groundwater beneath the site; management of large volumes of liquid and solid wastes generated as a result of site cleanup; management of the site infrastructure for the duration of the cleanup; providing hazardous materials and emergency response training at the HAMMER facility; support of the **Tank Waste Remediation System** regulatory unit; implementation of the science and technology roadmap for the integration of vadose zone and groundwater activities; and the characterization, processing, and shipment of about 50 cubic meters of TRU waste to WIPP.

At the **Richland/Office of River Protection** in FY 2001, eight activities are underway in support of the office's mission. These include maintaining the Tank Waste Characterization program capability and capacity to support minimum safe operations including caustic and comparability analysis; mitigating tank safety issues for high priority Watch List tanks; continuing to operate, maintain, and upgrade tank farm facilities to safely receive and store waste; operating the single-shell tank interim stabilization program; continuing design activities for waste retrieval systems; and providing program management services and oversight for the **Tank Waste Remediation System** Project.

The **Savannah River** FY 2001 request supports 41 projects including: continued surveillance and maintenance activities; continued receipt of spent nuclear fuel from foreign research reactors and domestic sources; stabilization of up to 200 canisters of high level waste (HLW) in the **Defense Waste Processing Facility** (DWPF); development of alternatives to the In-Tank Precipitation system; treatment of 493 cubic meters of MLLW; continued operation of the Consolidated Incinerator Facility to treat MLLW, LLW, and hazardous waste; and completing assessments for 26 release sites; and landlord activities. In addition to the funds provided, $14.5 million has been requested from the Cost of Work for Others Program within the Departmental Administration appropriation to support the Foreign Research Reactor Spent Nuclear Fuel Program.

The **Multi-Site** activities request supports activities within several projects, including headquarters technical support efforts, Environmental and Regulatory Analysis, Hazardous Waste Operator (HAZWOPER) training, and Emergency Preparedness—which focus national attention on areas that impact Department-wide goals.

Science and Technology ***(FY 2000 $229.4; FY 2001 $196.5)***

The FY 2001 request includes $196.5 million for the Office of Science and Technology, a decrease of $32.9 million or 14 percent from the FY 2000 comparable amount. In FY 2001, this program will conduct four major programs—Technology Development and Deployment, Technology Acceptance and Support, Science and Risk Policy. The Technology Development and Deployment program develops new technologies to improve cleanup capabilities. The Technology Acceptance and Support program ensures that technologies which are still in development will be used by DOE sites. The Science Program conducts basic research to provide new approaches for solving the Department's environmental problems. The Risk Policy program is a partnership with the Center for Risk Excellence (in Chicago), to develop and implement policy, practices, guidance, and tools necessary to support credible risk-based environmental decisions within the EM program.

Program Direction ***(FY 2000 $338.8; FY 2001 $359.9)***

The FY 2001 budget request for Program Direction is $359.9 million is virtually equal to the comparable FY 2000 amount when a pending FY 2000 reprogramming ($19.0 million) is considered. Program Direction provides funding for salaries, benefits, travel, training, support services, and other related expenses for 2,674 FTEs, 2,235 FTEs (or 84 percent) of whom are located in Field Offices. The FY 2001 request reflects congressional direction to reduce field staffing by five percent from FY 1999 levels.

Highlights of Program Changes ($ in millions)

Site/Project Completion ***(FY 2000 $958.5; FY 2001 $971.0)*** **+$3.6**

- **Albuquerque**: Overall increase reflects additional remediation requirements at Sandia and Pinellas. It also includes an increase for post-employment benefits at Pinellas.
- **Idaho:** Net decrease reflects near completion of several upgrade projects.
- **Richland**: Decrease reflects near completion of the construction project to support Plutonium Finishing Plant Deactivation and the rescheduling of plutonium stabilization activities.
- **Savannah River:** Increase reflects the construction activities on the B-Area chillers and start-up activities on the HB Line Phase II, the Canyon Exhaust Line Item, and the **HEU Blend Down Project**.

Post 2006 Completion ***(FY 2000 $2,9383; FY 2001 $3,108.5)*** **+$170.2**

- **Albuquerque**: Increase in characterization of TRU waste for shipment to **WIPP** and disposal of LLW.
- **Carlsbad**: Increase reflects moving **WIPP** into full operational capability to: receive an estimated 13 waste shipments per week by the end of FY 2001; complete system verification; conduct full panel mining operations; accelerate remote-handled facility upgrades; and procure contact-handled TRU waste shipping containers.
- **Idaho**: Net increase reflects: moving to post-Record of Decision work in Remedial Action Groups 1, 4, and 5; completing three assessments and two cleanups at facilities; and increased activity in the National Spent Fuel Program

to support cask development and transportation planning for placement of DOE fuel in a national repository

- **Nevada**: Increase supports: ramp up of remediation efforts; completion of an additional deep monitoring well and sampling of all wells in 2001; and increased funding for grants to support EM programs.
- **Oakland:** The increase is due to initiation of characterization activities at the Separations Process Research Unit, expanded deployment of the electro-osmosis technology, and some increase to the Livermore Base Program.
- **Oak Ridge**: The increase is due to: initiation of soil cleanup activities on the East Fork of Poplar Creek; activities for startup of waste disposal under the privatized contract; increases in MLLW and LLW disposition; one time costs associated with the construction and infrastructure of the Low Temperature Thermal Desorption plant for treating mercury contaminated soils; infrastructure improvement and repairs; and additional decontamination and decommissioning activities.
- **Richland**: Increases are due to costs associated with contract termination fees and workforce restructuring, characterization and treatment of MLLW, continued development of the science and technology roadmap for the vadose zone, and infrastructure and support upgrades.
- **Richland Office of River Protection:** Increases for accelerated design and construction of the Initial Tank Retrieval System, stabilization of HLW tanks, and tank waste characterization activities.
- **Savannah River**: Overall increase results from several programmatic shifts. Increases are associated with: the transfer of the Alternate Technology project; increased remediation efforts site-wide; the design and construction of a pilot facility for the replacement of the In-Tank Precipitation system; and initiation of a planned Distributed Control System and minor facility upgrades.
- **Multi-Site**: Decrease in Policy and Management and technical support activities.
- **D&D Fund** deposit *(FY 2000 $420.0; FY 2001 $420.0)* +$0.0

Science & Technology *(FY 2000 $229.4; FY 2001 $196.5)* **-$32.9**

- **Technology Development and Deployment**
  - Increase supports technology development related to the advanced remote handling system and Alternative Oxidation Technologies, which offer non-flame alternatives to incineration of wastes.
  - Increase in radioactive tank waste remediation focus area to demonstrate cesium removal process for salt disposition at Savannah River.
  - Decrease in subsurface contaminants focus area reflects completion of Accelerated Site Technology Deployment projects and completion of reactive barrier technology development activities.

- Overall decrease in D&D focus area reflects completion of activities related to the Fuel Pools and Associated Structures Large Scale Demonstration and Deployment Project.
- Increase in nuclear materials focus area reflects increased technology development activities related to material stabilization and disposition and in the packaging, transportation and storage areas.

- **Technology Acceptance and Support** – Decrease in Technology Acceptance and Support reflects planned reduction in the Interstate Technology Regulatory Cooperation workgroup and reduction to technology verification support.
- **Small Business Innovative Research Program** -- Decreased assessment caused by overall reduction to the R&D program.
- **EM Science** – No new awards in 2001. Funding maintains prior-year awarded science grants.
- **Risk Policy** -- Decrease reflects completion of Cooperative Agreement for the Consortium for Risk Evaluation and Stakeholder Participation in FY 2000.

Program Direction ***(FY 2000 $338.6; FY 2001 $359.9)*** **+$21.1**

- Increase in salaries and benefits funding supports escalation of personnel expenses, offset by reductions in FTEs across the EM complex; travel funding reduced from the FY 2000 comparable amount; support services funding reduced from the FY 2000 comparable amount; and funding for other related expenses increased over the FY 2000 comparable amount.

Defense Environmental Management Privatization

Program Overview

The Defense Environmental Management Privatization program comprises a group of projects that are funded in a non-traditional way. DOE attempts to obtain the best price for the desired products and services by using open competition to award fixed price contracts. The selected contractor is responsible for and owns development of the technologies, equipment, and facilities necessary to deliver the end product or service to EM. The contractor does not receive payment until specified goals are met and services are rendered.

By using this contracting mechanism EM hopes to reduce the cost of cleanup work; expedite Environmental Management clean-up activities; and obtain best-of-class resources within the private sector.

Budget Overview

The FY 2001 request of $515.0 million for the Defense Environmental Management Privatization appropriation is an increase of $326.7 million over the FY 2000 appropriated level. FY 2001 funding provides additional budget authority for two projects at Idaho and one project at Hanford.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Defense Environmental Management Privatization					
Privatization initiatives, various locations	260,357	232,282	540,092	307,810	132.5%
Use of prior year balances & other adjustments	-32,000	-44,000	-25,092	18,908	43.0%
Total, Defense Environmental Management Privatization	228,357	188,282	515,000	326,718	173.5%

Total funding to date (FY 1996 - FY 2001) for the Privatization program is approximately $1.5 billion. FY 2001 budget authority is requested for the following projects:

Advanced Mixed Waste Treatment Project, Idaho $65.0

Authorization to spend prior year balances from the privatization account is also requested for:

Spent Nuclear Fuel Dry Storage Project, Idaho $25.1

Tank Waste Remediation System, Phase I, Richland $450.0

This authority is necessary to cover the federal government's contractual obligations as the projects proceed. In the unlikely event that the government terminates the contract for convenience, these funds would be used to liquidate the termination liability of the government. If the project is successful, these funds would be used to pay the contractor for the capital expenses of the project as the actual product is delivered. Privatization prior year balances are available in FY 2001 due to a change in procurement strategies for two projects now operating expense funded.

Highlights of Program Changes ($ in millions)

Defense Environmental Management Privatization *(FY 2000 $188.3; FY 2001 $515.0)* **+$326.7**

Advanced Mixed Waste Treatment Project, Idaho (FY 2000 $109.7;FY 2001 $65.0) -$44.7

This project began in December 1996, for the treatment and supporting services for 65,000 cubic meters of alpha and TRU mixed waste located in retrievable storage at the INTEL Radioactive Waste Management Complex (RWMC). Cumulative funding through FY 2001 provides for approximately 58 percent of the funding needed for the physical construction phase of this project based on the awarded fixed price contract. Funding for the construction phase of this project will continue to be requested through 2007.

Spent Nuclear Fuel Dry Storage Project, Idaho (FY 2000 $5.0; FY 2001 $25.1) +$20.1

This project will provide licensed interim dry storage for three types of Spent Nuclear Fuel (SNF) at INTEL. The fuel currently resides in facilities at INTEL, at various universities, and at foreign research reactors. This project would place SNF containing approximately 55 metric tons of heavy metal into interim dry storage. Cumulative funding through 2001 provides 39 percent of the capital funding needed. Funding for the design construction phase of this project will continue to be requested through 2007.

Tank Waste Remediation System, Phase I, Richland (FY 2000 $105.7; FY 2001 $450.0) +344.3

The Tank Waste Remediation System (TWRS) project will vitrify waste into a form suitable for permanent disposal off-site. The HLW is currently stored in 177 underground temporary storage tanks located near the Columbia River. The *Hanford Tri-Party Agreement* requires the Department to vitrify all tank waste by 2028. In 1996, the Department competitively awarded a contract to British Nuclear Fuels, Ltd. (BNFL) for the design of the pilot vitrification facility. Under the contract, BNFL will design, construct, operate, and own the vitrification facility, and the Department will purchase vitrified waste at a fixed-price from BNFL once it is produced according to specifications. Under this approach, the contractor bears significantly greater risk for non-performance than under the more traditional methods of contracting. After examining a variety of potential contractual approaches to this project, the Department concluded that "privatization" would be the most cost-effective for the federal government.

In August 2000, following review of the design and further negotiations regarding the terms for the eventual purchase of the vitrified waste, the Department will determine whether to authorize BNFL to begin construction of the facility. The budget authority requested for FY 2001 is necessary to ensure that DOE can cover the capital expenditures that will be incurred by the contractor if the Department authorizes construction. The current schedule for construction and operation of the project is necessary to meet additional milestones for this project in the *Tri-Party Agreement*.

Non-Defense Environmental Management

Program Overview

Non-Defense EM is responsible for managing and addressing the environmental legacy resulting from nuclear energy and research activities. The EM program has established a goal of cleaning up as many of contaminated sites as possible by 2006. The FY 2001 budget request reflects the program's emphasis on protecting worker health and safety, reducing urgent risks, maintaining compliance with legal requirements and agreements, and site closure and project completion.

Budget Overview

The Non-Defense Environmental Management FY 2001 budget request of $286.0 million is a $21.2 million or a seven percent decrease from the FY 2000 comparable amount. The FY 2001 budget proposes a transfer of budget authority for the West

Valley Demonstration Project from the Site Closure to the Post 2006 Completion account, to reflect the expansion of the project planning base to include site decommissioning. It also reflects the proposed transfer of three sites under the jurisdiction of the Oakland Operations Office from the Site/Project Completion to the Post 2006 account, to more accurately reflect the anticipated completion time frame for these projects.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Non-defense Environmental Management					
Site closure	248,264	216,115	81,636	-134,479	-62.2%
Site/project completion	75,945	72,264	64,721	-7,543	-10.4%
Post 2006 completion	90,776	18,850	139,644	120,794	640.8%
Subtotal, Non-defense Environmental Management	414,985	307,229	286,001	-21,228	-6.9%
Use of prior year balances & other adjustments	-9,565	——	——	——	0.0%
Total, Non-defense Environmental Management	405,420	307,229	286,001	-21,228	-6.9%

FY 2001 Budget Request

Site Closure ***(FY 2000 $216.1; FY 2001 $81.6)***

Of the $286.0 million FY 2001 request for Non-Defense Environmental Management, $81.6 million is for Site Closure activities. This is $134.5 million or 62 percent below the FY 2000 comparable amount.

Albuquerque - Major FY 2001 activities will continue remediation of release sites and facility decommissioning at the Grand Junction Office; complete restoration of the remediated Monticello mill site and preparation of the project closeout reports; initiate ground water remedial action at the Ship Rock, New Mexico site within the UMTRA Groundwater Project; continue remedial action at Tuba City and Monument Valley, Arizona; and continue Uranium Leasing program activities for 43 sites.

Ohio - Activities at the Columbus Environmental Management Project (CEMP) have been transferred to the Defense Facilities Closure Projects Appropriation and the West Valley Demonstration Project (WVDP) in New York has been transferred to the Non-Defense Post 2006 Appropriation.

Oak Ridge - During FY 2001, remedial activities remain on track to complete all environmental restoration activities at Weldon Spring by 2003. Activities include: continuing waste placement and cell cover construction; completing treatment of trichloroethylene contaminated groundwater; and beginning the disassembly of the water treatment system.

Site/Project Completion ***(FY 2000 $72.3; FY 2001 $64.7)***

The request of $64.7 million is $7.6 million or ten percent below the FY 2000 comparable amount.

Albuquerque - The budget includes funding for remediation of the Atlas Site in Moab, Utah, subject to the authorized transfer of responsibility for the site from the Nuclear Regulatory Commission to DOE.

Chicago - Major activities planned in FY 2001 include: surveillance and maintenance activities and continued remediation payments at Princeton Plasma Physics Laboratory; remediation and groundwater activities at Brookhaven National Laboratory (BNL) (the DOE Office of Science also provides funding for BNL cleanup activities); facility decommissioning and remediation at Argonne National Laboratory-East (ANL); continued

landlord and program support; and compliant waste treatment, storage, and disposal activities at all sites (except ANL-West, which transferred to the generator in FY 1998).

Idaho - Supports the cleanup of three reactor facilities. Activities planned in FY 2001 include: the completion of deactivation of the Materials Test Reactor Canal; the preparation for fuel removal and deactivation of the Power Burst Facility; and continued surveillance and maintenance of the Advanced and Fast Coupled Reactivity Measurement Facility.

Oakland - Oakland will complete five assessments and five cleanups, and continue treatment, storage, and disposal activities associated with TRU, MLLW, and hazardous waste at the Laboratory for Energy-Related Health Research and LBNL.

Richland - Manages the stabilization and deactivation of Building 309, the Plutonium Recycle Test Reactor, and Nuclear Energy legacies.

Post 2006 Completion *(FY 2000 $18.9; FY 2001 $139.6)*

The FY 2001 request for Post 2006 Completion is $139.6 million. This amount is $120.7 million or 639 percent above the FY 2000 comparable amount.

Albuquerque - Manages the Radioactive Source Recovery Program through Los Alamos National Laboratory. In FY 2001, this program will continue to accept and dispose of the sealed radioactive sources consistent with Public Law 99-240. In addition, long term surveillance and maintenance activities will be performed on closed disposal sites.

Oakland - Facility deactivation and cleanup for the Energy Technology Engineering Center (ETEC), General Electric Vallecitos Nuclear Center (GE), and General Atomics facility (GA) sites. Activities include the remediation of contaminated groundwater at ETEC and decommissioning activities at the GE and GA sites.

Ohio - Manages the West Valley Demonstration Project in New York. FY 2001 activities include completion of high-level waste tank heels to produce approximately five canisters of solidified high-level waste.

Multi-Site activities include the Packaging Certification and Transportation Safety program. These Multi-Site activities allow EM to better coordinate DOE-wide program efforts.

Highlights of Program Changes ($ in millions)

Site Closure *(FY 2000 $216.1; FY 2001 $81.6)* **+$134.5**

- **Albuquerque** - Decreases are due primarily to completion of major on site work at the Monticello Uranium Mill Site. These decreases are offset in part by the increases in the UMTRA Groundwater Project to initiate cleanup of the Shiprock, New Mexico site.
- **Ohio** - The activities previously performed as part of this account have been transferred to other accounts.
- **Oak Ridge** - The net increase is to support completion of activities at the Weldon Spring site in Missouri.

Site/Project Completion *(FY 2000 $72.3; FY 2001 $64.7)* **-$7.6**

- **Albuquerque** - Net increase reflects funds for the cleanup of the uranium mill site in Moab, Utah.

- **Chicago** - Net increase covers decontamination and decommissioning activities.
- **Idaho** - Net decrease reflects the completion of the Three Mile Island Dry Storage Facility, and reduced funding requirements for the National Low Level Waste Program.
- **Oakland** - Net increase supports activities being negotiated in a compliance agreement to cover the Laboratory for Energy-Related Health Research.
- **Richland** - The net change reflects a slight increase in activity at the Recycle Test Reactor

Post 2006 Completion *(FY 2001 $18.9; FY 2001 $139.6)* **+$120.7**

- **Albuquerque** - Increase supports long-term surveillance and maintenance activities.
- **Oakland** - Net increase supports restoration activities at the Energy Technology Engineering Center and decommissioning work at the General Electric Nuclear Center.
- **Ohio** - Activities at the West Valley Demonstration Project include continued work on the tank waste heels and preparation for shipment of spent nuclear fuel to Idaho.

Uranium Enrichment Decontamination & Decommissioning Fund

Program Overview

The Energy Policy Act of 1992 established the Uranium Enrichment D&D Fund to carry out environmental management responsibilities at the nation's three gaseous diffusion plants in **Portsmouth**, Ohio; **Paducah**, Kentucky; and Oak Ridge, Tennessee's **East Tennessee Technology Park** (ETTP - formerly K-25). These responsibilities include decontamination and decommissioning, remedial actions, waste management, ETTP landlord requirements, and surveillance and maintenance activities associated with pre-existing conditions at the plants. The Energy Policy Act also authorizes annual deposits into the Uranium Enrichment D&D Fund of up to $480.0 million (adjusted for inflation). Domestic utilities are to be assessed up to $150.0 million per year (adjusted for inflation) for 15 years based on their purchase of uranium enrichment services from the federal government. The remainder of the annual deposit is authorized to come from annual appropriations.

The Energy Policy Act also requires DOE to develop and administer a reimbursement program for active uranium and thorium processing sites which sold processed ore to the United States Government. This program assists site owners by compensating them on a per ton basis for the restoration costs of tailings resulting from the sale of materials to the federal government.

Budget Overview

The FY 2001 budget request is $303.0 million from the Uranium Enrichment D&D Fund. The total Environmental Management FY 2001 budget request will be offset by a federal government contribution of $420.0 million to the Uranium Enrichment D&D Fund. This amount is appropriated to the Department within the Defense Environmental Restoration and Waste Management appropriation account. In addition, an estimated $184.0 million from assessments to domestic utilities will be deposited into the Fund. Of the $303.0

million requested for appropriation from the Uranium Enrichment D&D Fund in FY 2001, $273 million will be used to fund current work at the gaseous diffusion plants. The balance of the request, $30.0 million provides for the partial payment of approved uranium and thorium reimbursement claims. The balance of the deposits within the Fund remain for future cleanup at the gaseous diffusion plants.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Uranium Enrichment Decontamination and Decommissioning Fund					
Decontamination and decommissioning	190,153	235,247	273,038	37,791	16.1%
Uranium/thorium reimbursements	30,000	30,000	30,000	——	——
Subtotal, Uranium Enrichment Decontamination and Decommissioning Fund	220,153	265,247	303,038	37,791	14.2%
Use of prior year balances & other adjustments	——	-16,000	——	16,000	100.0%
Total, Uranium Enrichment Decontamination and Decommissioning Fund	220,153	249,247	303,038	53,791	21.6%

FY 2001 Budget Request

The FY 2001 budget request reflects a $53.8 million or 25 percent increase over the FY 2000 comparable amount.

Oak Ridge *(FY 2000 $219.2; FY 2001 $273.0)* **+$53.8**

The Department has identified areas within the EM program -- consistent with the Department's Phase I preliminary investigation completed in 1999 -- that could be accelerated to address additional health and safety related concerns of legacy waste storage, stabilization of shutdown facilities, and residual TRU contamination in soils and sediments at the Paducah and Portsmouth Gaseous Diffusion Plants.

The **Paducah** FY 2001 request of $78 million, an increase of $23.8 million from FY 2000, will accelerate and accomplish disposal of 7,500 tons of crushed drums from Drum Mountain in the first quarter of FY 2001. The increase will also enable the Department to permit issuance in FY 2001 of a Record of Decision at Paducah for implementing the final remedial action of sources contributing to the existing northeast and northwest contaminated groundwater plumes; accelerate stabilization activities in the metals plant and feed plant shutdown buildings; and characterize and dispose of the remaining 9,000 drums of low-level waste.

Highlights of Program Changes ($ in millions)

The **Portsmouth** FY 2001 request of $76.2 million, an increase of $30.1 million from FY 2000, will: accelerate disposal of approximately 300 containers of heavy metal sludge to ensure compliance with site treatment plan milestones; accelerate Quadrants I & II corrective measure implementation design and construction for final soil and groundwater contamination sources to ensure completion in FY 2002 to meet RCRA Consent Order enforceable milestone; and continue characterization of approximately 14,000 drums of Toxic Substance Control Act LLW solids.

Uranium/Thorium Reimbursements *(FY 2000 $30.0; FY 2001 $30.0)* ***+$0.0***

Nuclear Waste Disposal

Mission

The mission of the **Office of Civilian Radioactive Waste Management (OCRWM)**, as set out in the Nuclear Waste Policy Act of 1982, is to implement the federal policy for permanent geologic disposal of high-level radioactive waste and spent nuclear fuel, in order to protect the public's health and the environment. The program provides leadership in developing and implementing strategies to accomplish this mission that assure public health and safety, protect the environment, merit public confidence, and are economically viable.

Program Overview

The Nuclear Waste Policy Act established the Office to carry out the federal government's responsibility to permanently dispose of commercially generated spent nuclear fuel and high-level radioactive waste, generated by the nation's nuclear defense activities, in a geologic repository.

The Program plans to re-compete the current Management and Operating (M&O) contract. A follow-on performance-based contract will be awarded in FY 2001.

The OCRWM program consists of three major subprograms: 1) the Yucca Mountain Site Characterization Project (YMP); 2) Waste Acceptance, Storage and Transportation (WAST); and 3) Program Management and Integration. It also includes a Program Direction decision unit.

Yucca Mountain Site Characterization Project

The YMP is responsible for performing the scientific and technical analyses of the Yucca Mountain candidate site necessary for a suitability determination. If the site is determined to be suitable for a geologic repository, a license will be requested from the Nuclear Regulatory Commission (NRC).

The Viability Assessment (VA), required by the FY 1997 Energy and Water Development Appropriation and published in December 1998, compiled the results of nearly 18 years of scientific and technical evaluation conducted at the Yucca Mountain site. The VA described the site, preliminary repository and waste package designs, and detailed how the site's engineered and natural barriers would work together as a system. It also identified the activities and costs required to submit a License Application to the NRC, as well as an estimate of the costs to construct and operate a repository at the Yucca Mountain site.

The program continues to build on the success of the Viability Assessment and is actively pursuing the work scope identified in the VA report, as well as focusing on emerging issues raised by the program's interactions with both the U.S. Nuclear Waste Technical Review Board and the Nuclear Regulatory Commission. Successful completion of the planned scope of work, on the schedule articulated in the Viability Assessment, will provide the scientific and technical information needed for a recommendation to the President on whether or not the Yucca Mountain site is suitable for development as a repository.

The FY 2001 budget request for the Yucca Mountain Project continues to be based, in large measure, upon the work scope and funding requirements detailed in the Viability Assessment and the Total System Life Cycle Cost reports.

Waste Acceptance, Storage & Transportation

The primary responsibilities of the Waste Acceptance, Storage and Transportation function are to develop a process for the legal and physical transfer of spent nuclear fuel to the federal government; create a private sector-based national transportation capability for waste acceptance and transportation; and resolve institutional issues with stakeholders.

The core activities that precede removal and transportation of spent nuclear fuel from reactor sites to a federal facility will be provided for in the FY 2001 funding. These activities include: the collection and maintenance of spent nuclear fuel discharge information; development of procedures for verification of spent nuclear fuel parameters; maintenance and implementation of the Standard Contract; interactions with the NRC, contract holders, stakeholders, and others concerning nuclear materials safeguards; and the development of the acquisition process for waste acceptance and transportation equipment and services utilizing private entities.

Program Management and Integration

Program Management and Integration provides management support and program integration to both the Yucca Mountain Site Characterization Project and the Waste Acceptance, Storage and Transportation activities. Program Integration is comprised of Quality Assurance, Program Management, and Human Resources and Administration. These offices are responsible for quality assurance, system integration, regulatory integration, strategic planning, international waste management, program management, human resources and development, audits, education and information, and information management.

The program is also working to advance the nation's nonproliferation objectives with Russia by co-managing a program to examine permanent disposition options for spent nuclear fuel and radioactive high-level waste.

Program Direction

Program Direction provides the overall direction and administrative support of the Civilian Radioactive Waste Management Program, including all costs associated with the federal workforce. Program Direction is grouped into five categories: 1) Salaries and Benefits; 2) Travel; 3) Other Related Expenses; 4) Working Capital Fund; and 5) Support Services.

OCRWM is funded through the Nuclear Waste Disposal and the Defense Nuclear Waste Disposal appropriations. The Nuclear Waste Disposal funding is appropriated from the Nuclear Waste Disposal fund, which is financed by fees from the ratepayers of nuclear utilities. The Defense funding is provided as a General Fund appropriation to offset the costs of disposing the Department's high-level waste generated from atomic energy defense activities. While the program direction requirements are funded

from within the Nuclear Waste Disposal appropriation, the balance of OCRWM activities are funded jointly from the two accounts, with few exceptions.

Budget Overview

The FY 2001 budget request is $437.5 million. A total of $325.5 million is derived from the Nuclear Waste Disposal fund and the remaining $112.0 million will be supported through the Defense Nuclear Waste Disposal fund.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Nuclear Waste Disposal – Financing					
Nuclear Waste Disposal	164,465	235,601	325,500	89,899	38.2%
Defense Nuclear Waste Disposal	189,000	111,574	112,000	426	0.4%
Total, Nuclear Waste Disposal – Financing	353,465	347,175	437,500	90,325	26.0%
Nuclear Waste Disposal — Activities					
Yucca mountain site characterization	281,879	281,175	358,306	77,131	27.4%
Waste acceptance, storage and transportation	1,850	1,795	3,800	2,005	111.7%
Program Mgmt Center (Pgm integration)	11,250	8,621	11,766	3,145	36.5%
Program direction	58,486	59,584	63,628	4,044	6.8%
Subtotal, Nuclear Waste Disposal	353,465	351,175	437,500	86,325	24.6%
Less Recission	——	-4,000	——	4,000	100.0%
Total, Nuclear Waste Disposal — Activities	353,465	347,175	437,500	90,325	26.0%

FY 2001 Budget Request

The FY 2001 request allocates $358.3 million to continue characterization of the **Yucca Mountain** site, a $77.1 million or 27.4 percent increase over the FY 2000 current appropriation level.

The increase over the FY 2000 funding level will support the scientific and technical work necessary to complete site characterization at Yucca Mountain. The work performed in FY 2001 will end the site characterization phase of this project and support completion of the scientific and technical work necessary to determine whether the Yucca Mountain site is suitable for development as a geologic repository.

The FY 2001 request also provides $3.8 million for **Waste Acceptance, Storage and Transportation** activities, a $2.0 million or 112 percent increase over the FY 2000 current appropriation level. This funding will provide for continuation of the core activities that will precede removal and transportation of spent nuclear fuel from reactor sites to a federal facility. Development of the detailed plans for waste acceptance and transport, the fabrication of the transportation casks and related equipment, and the actual transportation services will proceed within the planned contract phases. The increase in funding will be used to reactivate activities related to the development of the request for proposals for waste acceptance and transportation services in FY 2001 and issue it in FY 2002.

The request also provides $11.8 million for **Program Integration** activities, which include systems and regulatory integration, quality assurance, strategic planning, program and information management, and human resources and administration. The request is a $3.1 million or 36.5 percent increase over the FY 2000 current appropriation level.

The **Program Direction** portion of the request is $63.6 million, a $4.0 million or 6.8 percent increase over the FY 2000 current appropriation level. These activities include funding for federal salaries, benefits, travel, support services, working capital fund, and other related services.

Highlights of Program Changes ($ in millions)

Yucca Mountain Site Characterization *(FY 2000 $281.2; FY 2001 $358.3)* +$77.1

- Increase in **Suitability/Licensing and Performance Assessment** reflects the preparation and distribution of the Site Recommendation Consideration Report and Site Recommendation Report. (+$23.6)
- Decrease in **Core Science** reflects completion of testing to support the Site Recommendation and License Application; and environmental monitoring and compliance activities are expected to decline somewhat after the License Application has been submitted. (-$1.2)
- Increase in **Design and Engineering** reflects the increased design activity needed to complete the design for the License Application, including waste packages, sub-surface facilities and surface facilities design. (+$45.0)
- Increase in **National Environmental Policy Act** includes preparing the Final Environmental Impact Statement (FEIS), initiating review by appropriate Department organizations, and completing the administrative record that supports the FEIS. (+$0.3)
- Increase in **Operations/Construction** encompasses the work required to provide the support systems, infrastructure, and utilities needed to operate the surface and underground facilities that support all on-site testing and to maintain stakeholder access. (+$3.0)
- Increase in **Project Management Support** reflects activities to directly support the work of preparing the Site Recommendation Consideration Report and supporting documents, engaging in the intensive activities associated with their release, and conducting public hearings. (+$1.1)
- Increase in **External Oversight and Payments Equal to Taxes** reflects taxes paid to the State of Nevada and Nye and Clark Counties. (+$5.5)

Waste Acceptance, Storage & Transportation *(FY 2000 $1.8; FY2001 $3.8)* +$2.0

- Increase in **Transportation** reflects the preparation of acquisition documents and technical specifications, issued for public comment and the revised draft *Request for Proposal for Waste Acceptance and Transportation Services*. (+$1.8)
- Increase in **Waste Acceptance** reflects the funds requested for implementation of requirements established in the Memoranda for Acceptance of DOE spent nuclear fuel, DOE high-level waste, and Navy spent fuel. (+0.3)

Program Integration ***(FY 2000 $8.6; FY 2001 $11.7)*** **+$3.1**

- Increase in **Systems Integration** reflects activities related to the CRWMS Program baseline, updating CRWMS Total System Life Cycle Cost (TSLCC) estimates, and developing cost assumption packages in support of the TSLCC analyses. (+$0.3)
- Increase in **Regulatory Integration** is related to coordination and participation with external agencies, i.e., Nuclear Regulatory Commission, Environmental Protection Agency, and the Nuclear Waste Technical Review Board. (+$0.3)
- Increase in **Strategic Planning** responds to program inquiries and links requirements with external program oversight parties and liaison activities within the Department. (+$0.5)
- Increase in **Program Management** is required to improve program and project management systems, maintain and support implementation of new Departmental project management policy and requirements. (+$0.09)
- Increase in **Human Resources Development** and **Audits, Reports, Education, and Information** reflects supplies and publication services for mandatary documents and activities. (+$0.06)
- Increase in **Information Management** is required to maintain and upgrade the program's existing information management systems and networks. (+$1.9)

Program Direction ***(FY 2000 $59.6; FY 2001 $63.6)*** +$4.0

- Increase in **Salaries and Benefits** reflects the hiring of four additional FTEs in accordance with the Workforce 21 Plan and includes additional funding needed to support general pay increases, promotions, and within grade increases. (+$1.6)
- Increase in **Other Related Expenses** and **Working Capital Fund** due to inflation and rising prices, respectively. (+$0.2)
- Increase in **Support Services** reflects a change in rates for automated data processing contractor, additional NEPA documentation that will support the Final Environmental Impact Statement, and expanded work scope related to the review of critical documents: Site Recommendation Characterization Report, FEIS, and documentation to support a Secretarial decision on Site Recommendation. (+$2.3)

Defense Nuclear Waste Disposal

Mission

The mission of the Defense Nuclear Waste Disposal Program is to dispose of high-level waste generated from atomic energy defense activities. The primary focus of this program is to find a long-term geological repository for Defense Nuclear Waste. This effort supports the Yucca Mountain Site Characterization Project and the Waste Acceptance Storage and Transportation (WAST) Project, which are described in detail in the Nuclear Waste Fund Budget Request. The FY 2001 budget request is $112.0 million.

Power Marketing Administrations

Mission

The **Power Marketing Administrations** (PMAs) sell electricity primarily generated by hydropower projects located at federal dams. First preference for the sale of power is given to public bodies and cooperatives. Revenues from selling the power and transmission services of the three PMAs are used to repay the U.S. Treasury for annual operation and maintenance costs, repay the capital investments with interest, and assist capital repayment of other features of certain projects. The Bonneville Power Administration, which is self financed, funds the expense portion of its budget, the power operations and maintenance costs of the Bureau of Reclamation, and the U.S. Army Corps of Engineers in the Federal Columbia River Power System. Bonneville also repays the federal investment with revenues from electric rates.

Program Overview

Southeastern Power Administration

Since SEPA does not own or operate any transmission facilities, power is delivered by using the transmission systems of the electric utilities in the area. This is accomplished through "wheeling" agreements between Southeastern and the region's large private utilities with transmission lines connected to the projects to provide firm power to Southeastern's customers. Beginning in FY 2001, the Southeastern Power Administration will seek authority to use offsetting collections from the sale of electricity to finance purchase power and wheeling expenses previously funded by direct appropriations. Purchase power and wheeling activities financed through this method will continue through FY 2004.

Southwestern Power Administration

The Southwestern Power Administration (SWPA) operates within a six-state area as a marketing agent for hydroelectric power produced at 23 U.S. Army Corps of Engineers multipurpose projects and sells power at wholesale rates primarily to publicly and cooperatively owned electric distribution utilities. To integrate the operation of the hydroelectric generating plants and to transmit power from the dams to its customers, Southwestern maintains 1,380 miles of high-voltage transmission lines, 24 substations, and 46 microwave and VHF radio sites. Beginning in FY 2001, SWPA will seek authority to use offsetting collections from the sale of electricity to finance purchase power and wheeling expenses previously funded by direct appropriations. Purchase power and wheeling activities financed through this method will continue through FY 2004.

Western Area Power Administration

The Western Area Power Administration (WAPA) sells and provides transmission of federal and non-federal electric power in 15 central and western states encompassing about 40 percent of the total area of the contiguous United States from 55 federally owned hydropower plants operated primarily by the Bureau of Reclamation, U.S. Army Corps of Engineers, and the International Boundary and Water Commission. WAPA also markets the United States entitlement from the Navajo coal-fired power plant near Page, Arizona.

These activities are accomplished through a combination of appropriated funds and direct use of revenues. Western maintains an existing infrastructure of 16,857 circuit miles of transmission lines and 256 substations. To firm up federal hydropower supplies needed to meet its contractual obligations, WAPA purchases power from others and purchases transmission services when a third party's transmission lines are needed to deliver federal power. Beginning in FY 2001, WAPA will seek authority to use offsetting collections from the sale of electricity to finance purchase power and wheeling expenses previously funded by direct appropriations. Purchase power and wheeling activities financed through this method will be phased out in annual decrements by the end of FY 2004.

Bonneville Power Administration

The Bonneville Power Administration (BPA) provides electric power, transmission, and energy services to a 300,000 square mile service area in the Pacific Northwest. BPA sells, at wholesale, the power produced at a total of 29 federal projects, operated by the U.S. Army Corps of Engineers, the Bureau of Reclamation, and from certain non-federal hydro and thermal generating facilities. Bonneville provides about 40 percent of the Pacific Northwest region's electric power transmission capacity utilizing over 23,000 circuit kilometers (about 15,000 circuit miles) of transmission lines and about 324 substations. Operating on a self financed revolving fund basis, Bonneville does not require appropriations to finance its day to day operations. It does, however, utilize borrowing authority for its capital investment activities. BPA funds the expense rates. Overall, the budget request for the Power Marketing Administrations, excluding Bonneville and the Colorado River Basins, decreases by $30.8 million in FY 2001. This consists of: a $40.3 million reduction in the WAPA program level, including the activities of the Falcon and Amistad Operating and Maintenance Fund; a $0.3 million level; and these are offset by a $15.8 million decrease in prior year balances available to offset FY 2001 requirements. This results in a net decrease of $30.8 million. program level; a $6.6 million decrease in the SEPA program portion of its budget and repays the federal investment with revenues from electric Bonneville Power Administration proposes to obligate $331.2 million of its borrowing authority in FY 2001 and will have net outlays of $68.0 million.

Power Marketing Administrations

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Power Marketing Administrations:					
Southeastern Power Administration	10,500	11,579	5,000	-6,579	-56.8%
Southwestern Power Administration	25,953	28,664	29,000	336	1.2%
Western Area Power Administration	223,183	212,602	170,899	-41,703	-19.6%
Falcon & Amistad Operating & Maintenance Fund	994	1,309	2,670	1,361	104.0%
Subtotal, Power Marketing Administrations:	260,630	254,154	207,569	-46,585	-18.3%
Use of prior year balances	-23,576	-23,773	-7,983	15,790	66.4%
Total, Power Marketing Administrations	237,054	230,381	199,586	-30,795	-13.4%
Colorado River Basin Power Marketing Fund					
Spending authority from offsetting collections	100,661	113,591	114,709	1,118	1.0%
Offsetting collections	-116,759	-134,591	-135,709	-1,118	-0.8%
Total, Colorado River Basin	-16,098	-21,000	-21,000	——	——
Bonneville Power Administration (non-add)					
Budget authority (Net)	(18,000)	(52,000)	(68,000)	(16,000)	(50.9%)
Capital obligations (Gross)	(185,033)	(309,500)	(331,200)	(21,700)	(7.0%)

FY 2001 Budget Request

Southeastern Power Administration – $5.0 million

The Southeastern Power Administration's FY 2001 program level is $5.0 million, funded by $3.9 million in new budget authority and $1.1 million in prior year balances. In addition, SEPA will use $34.5 million in revenues from the sale of electricity for purchase power and wheeling expenses. This funding covers program direction requirements for 42 FTEs. SEPA will: market all available power giving preference to public bodies and cooperatives; ensure that each power system control area receives, for each month of the fiscal year, a Control Compliance Rating of "Pass" using the North America Electric Reliability Council performance standard; meet planned repayment of principal on Power Investment; and achieve a safety performance rate of at most 3.3 recordable accidents for recordable injuries per 200,000 hours worked or the Bureau of Labor Statistics industry rate, whichever is lower.

Southwestern Power Administration – $29.0 million

The Southwestern Power Administration's FY 2001 funding level is $29.0 million, funded by $28.1 million in budget authority, $0.9 million in prior year balances, and $4.2 million in non-federal reimbursable authority. In addition, SWPA will use $0.3 million in revenues from the sale of electricity for purchase power and wheeling expenses. The majority of the funding is dedicated to program direction for 177 FTEs. The personnel will conduct all activities connected with the marketing and delivery of federally generated hydroelectric power to customers; transmission line, substation, and communication system maintenance; and equipment replacement at facilities associated with the transmission system.

In FY 2001, Southwestern will: market and deliver all available hydroelectric power as measured by the amount of firm capacity and associated energy delivered, economic benefits realized, and fossil fuels saved; ensure that each power system control area receives, for each month of the fiscal year, a Control Compliance Rating of "Pass" using the North America Electric Reliability Council performance standard; meet planned repayment of principal on Power Investment; and achieve a safety performance rate of at most 3.3 recordable accidents for recordable injuries per 200,000 hours worked or the Bureau of Labor Statistics industry rate, which ever is lower.

Western Area Power Administration – $173.6 million

The Western Area Power Administration's FY 2001 Construction, Rehabilitation, Operation and Maintenance program is $170.9 million, funded by $164.9 million in new budget authority and $6.0 million in prior year balances. In addition, WAPA will use $35.5 million in revenues from the sale of electricity for purchase power and wheeling expenses. Over half of the funding, $106.7 million, covers program direction for 1,075 FTEs who perform operations, maintenance, and construction activities associated with Western's transmission system and other power marketing activities.

The remaining funding includes: $36.1 million for WAPA's operation and maintenance program which provides materials, supplies, equipment, and technical services used in direct support of the operation and maintenance of the interconnected power system; $23.1 million for construction and rehabilitation activities which include replacements and upgrades of Western's existing infrastructure; and $5.0 million is included for Western's contribution to the Utah Reclamation, Mitigation, and Conservation account.

There is no appropriation request for Boulder Canyon Project activities. In FY 2000, Western began spending directly out of the Colorado River Dam Fund for operation and maintenance activities and the 30 FTEs associated with the Boulder Canyon Project. The Colorado River Dam Fund is a revolving fund operated by the Interior Department's Bureau of Reclamation. Authority for WAPA to obligate directly from the Colorado River Dam Fund comes from Section 104 (a) of the Hoover Power Plant Act of 1984.

A total of $2.7 million is requested for the operation and maintenance of the hydroelectric facilities at the Falcon and Amistad dams.

Operation of the Colorado River Basins Power Marketing program, on a revolving fund basis, continues at an estimated FY 2001 level of $113.6 million in spending authority from offsetting collections, with a staffing level of 185 FTEs.

In FY 2001, Western will seek the following four performance objectives: control cost growth in regular operation and maintenance to no more than the annual rate of inflation; ensure that each power system control area receives a monthly Control Compliance Rating of "Pass" using the North America Electric Reliability Council performance standard; meet planned repayment of principal on Power Investment; and achieve a safety performance of at most 3.3 recordable accidents for recordable injuries per 200,000 hours worked or the Bureau of Labor Statistics industry rate, whichever is lower.

Bonneville Power Administration

In FY 2001, the Bonneville Power Administration budget includes $331.2 million in borrowing authority for capital investments. These investments provide electric utility and general plant maintenance associated with the Federal Columbia River Power System's

transmission services, capital equipment, hydroelectric projects, conservation, and capital investments in environment, fish, and wildlife. Over half of the capital investments in FY 2001, $207.2 million, are for the transmission business line to provide for additions, upgrades, and replacements to the federal transmission system; for pollution prevention and abatement activities in compliance with environmental laws and regulations; and to mitigate environmental risks associated with operation of the power system. Funding of $76.0 million is allocated to additions, improvements, and replacements of existing U.S. Bureau of Reclamation and Corps of Engineers hydroelectric projects in the Pacific Northwest. Funding of $27.0 million is allocated to resource protection, enhancement, and mitigation of Columbia River Basin fish and wildlife losses attributed to the development and operation of federal hydroelectric projects on the Columbia River and its tributaries. Capital Equipment is funded at $15.0 million. Capitalized Bond Premium funding is estimated at $16.0 million.

Bonneville's FY 2001 budget has been prepared on the basis of its major areas of activity – power and transmission. This new structure supports Bonneville's reorganization, undertaken to become more competitive in the rapid restructuring of the wholesale electric energy market. This effort stems largely from the 1992 Energy Policy Act and ensuing Federal Energy Regulatory Commission (FERC), orders 888 and 889, requiring separation of utilities' power and transmission functions. As a federal agency, Bonneville is not bound by law to comply with these orders, but chose to because it views compliance as essential to successfully competing in the electric power market of the future. Further, Bonneville supports DOE's October 1995 "Power Marketing Administration Open Access Policy."

Highlights of Program Changes ($ in millions)

Southeastern Power Administration *(FY 2000 $11.6; FY 2001 $5.0)* **-$6.6**

Program direction increases $0.3 million, from $4.7 million to $5.0 million, due to the pay raise, within grade increases, and capital improvements associated with upgrading SEPA's office. Purchase Power and Wheeling decreases from $6.9 million to zero due to a change of policy noted in the Program Overview section.

Southwestern Power Administration *(FY 2000 $28.7; FY 2001 $29.0)* **+$0.3**

Operations and maintenance increases by $0.2 million, from $3.8 million to $4.0 million, due to an increase in environmental activities necessary to comply with environmental laws and regulations. Purchase Power and Wheeling decreases from $0.8 million to zero due to the change of policy noted in the Program Overview section. Construction increases by $0.1 million, from $6.7 million to $6.8 million, due to the need to purchase circuit breakers. Program Direction increases by $0.8 million, from $17.5 million to $18.4 million, to accommodate the cost of living increase, within grade increases, and anticipated rate increases for FTS 2001 transition, utilities, and contract services.

Western Area Power Administration *(FY 2000 $213.9; FY 2001 $173.7)* **-$40.2**

Program Direction increases $2.1 million, from $104.5 million to $106.6 million, due primarily to the pay raise.

Operations and Maintenance increases $1.4 million, from $34.7 million to $36.1 million, due to an increase in replacements and additions attributed to a software upgrade for one supervisory control and data acquisition system. Also, a more aggressive level of

equipment purchases associated with the requirement for WAPA to move its communications equipment into more narrow bands by 2004 is anticipated.

Purchase Power and Wheeling decreases from $41.9 million to zero due to a change of policy noted in the Program Overview section above.

Construction and Rehabilitation decreases $3.3 million, from $26.4 million to $23.1 million. A decrease of $11.0 million is due to the completion of transmission line rehabilitation work and several additional active transmission line projects which are nearing completion. It is offset by an increase of $7.7 for several new substation starts in FY 2001, which are necessary to maintain the reliability of the transmission system.

The Falcon and Amistad Maintenance Fund increases $1.4 million, from $1.3 million to $2.7 million, to fund necessary deferred equipment purchases, upgrades and replacements, extensive rehabilitation of turbine structures, penstocks, salaries, and administrative requirements.

Colorado River Basins Power Marketing Fund ***(FY 2000 -$21.0;FY 2001 $-21.0)*** **$0.0**

Bonneville Power Administration ***(FY 2000 $309.5; FY 2001 $331.2)*** **+$21.7**

Power Business Line program activity decreases $4.0 million, from $107.4 million in FY 2000 to $103.4 million, in FY 2001 due to the completion of improvements to and replacements of existing U.S. Bureau of Reclamation and U.S. Army Corps of Engineers hydroelectric projects. The Transmission Business Line increases $39.7 million, from $167.5 million to $207.2 million, due primarily to major construction activities to reinforce the Northern Intertie in the Puget Sound area to allow a full return of power due to Canada under a treaty and an offsetting decrease in fiber activities. Capital Equipment/Capitalized Bond premium costs decreases $14.0 million, from $34.6 million to $20.6 million, because of a lower level of bond refinancing.

Federal Energy Regulatory Commission

Mission

The **Federal Energy Regulatory Commission** (FERC) regulates key interstate aspects of the electric power, natural gas, oil pipeline, and hydroelectric industries. FERC chooses regulatory approaches that foster competitive markets whenever possible, assures access to reliable service at a reasonable price, and gives full and fair consideration to environmental and community impacts in assessing the public interest of energy projects.

Program Overview

In FY 2001, the Commission will shift from its traditional regulation of energy industries. Over the last decade, FERC has fostered the development of oil pipeline, natural gas, and electric power commodity markets. Oil pipeline and natural gas commodity markets have been competitive for some time. Competition in electric commodity markets is growing, placing stress on existing market and regulatory institutions. Further, the electric and natural gas industries are in the process of merging, and the Commission is anticipating their merger by combining its regulation of energy markets into one program. FERC's overall objective in regulating energy markets is the delivery of reliable, competitively-priced energy services, with customers protected from the exercise of market power.

The Commission is also responsible for licensing non-federal hydropower projects and certifying construction of interstate natural gas pipelines. These projects have economic, environmental, and cultural implications, all of which must be considered in the licensing or certification process. Most hydropower licensing issues are intensely environmental in nature, while gas certification involves fewer and different environmental issues. Both processes address not only the economics and engineering issues of project development, but also the often competing values of the natural environment and human culture. In addition, FERC is responsible for the safety of hydropower projects and the operational safety and reliability of liquefied natural gas storage. As a result, the Commission is combining its environmental and engineering expertise into a single program.

FERC recognizes the vital role of its support functions and will present them as a separate program in FY 2001. This approach establishes accountability for an increasingly important set of activities including human resources management and development, financial management, procurement, strategic management, information technology, external communications, dispute resolution, and general legal services.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Federal Energy Regulatory Commission					
Federal Energy Regulatory Commission	167,500	174,950	179,900	4,950	2.8%
FERC Offsetting Collections	-167,500	-174,950	-179,900	-4,950	-2.8%
Total, Federal Energy Regulatory Commission	———	———	———	———	———
Fees & recoveries in excess of appropriation	-25,167	-21,309	-28,342	-7,033	-33.0%

Budget Overview

The Commission's budget request for FY 2001 is $179.9 million. This request funds 1,250 FTEs, the same number as in FY 2000. FERC will recover the full cost of its operations through a system of annual charges and fees, resulting in no appropriation in FY 2001.

Highlights of Program Changes ($ in millions)

The FY 2001 budget request reflects the Commission's response to external challenges. First, the competition the Commission has long encouraged is now changing the nature of the natural gas and electric industries. As a result, FERC must work to understand the market more fully and to respond to new issues faster, even as it continues to fulfill its traditional responsibilities. Second, the Commission's energy projects programs (natural gas pipeline construction and hydropower) face growing public concern over environmental issues. At the same time, energy projects are subject to industry competition, which creates an ever-increasing need to act quickly. With energy projects, the Commission's challenge is to address a greater number of difficult issues, while keeping to the tightest time frames possible. Finally, all government agencies must become more accountable for the results of their programs. This means developing and living by outcome-based performance measures as required under the Government Performance and Results Act, while finding ways to work more efficiently. In this case, the challenge for the Commission is to develop regulatory programs to match changing industries while simultaneously improving service and lowering real costs.

Fossil Energy Research and Development

Mission

The mission of the research and development program in the **Office of Fossil Energy** (FE) is to stimulate the sustainable development and use of the nation's fossil fuel resources and technologies to assure an ample, secure, clean, and low cost domestic energy supply. The program works to: ensure U.S. global leadership in fossil energy technology; protect the local, regional, and global environment; merit public trust; promote public-private partnerships; and contribute to a stronger economy.

Program Overview

The U.S. relies on fossil fuels for about 85 percent of the energy it consumes, and is expected to remain dependent on fossil fuels throughout the early decades of the 21st century. Key goals of the Fossil Energy R&D program include ensuring the continued national economic benefits from economically competitive fossil fuels, maintaining a strong domestic industry, and developing technology that cleanly and efficiently utilizes coal, oil, and natural gas. The programs in this budget comprise a portfolio of activities designed to accomplish these goals.

For coal and power systems, there are multiple issues relating to environmental protection, such as: sulfur dioxide (SO_2) and nitrogen oxide (NO_X) emissions; small particulate emissions and air toxins; land use constraints; and greenhouse gas emissions. The R&D program proposed in this budget can reduce the cost of meeting environmental regulations for existing powerplants by billions of dollars per year; lead to a new generation of cleaner power systems (both central and distributed) which will achieve efficiencies of over 60 percent; yield no net carbon dioxide emissions; produce low-cost power; and be competitive with the most advanced pulverized coal plants in the world. R&D in the area of alternative transportation fuels will, in conjunction with engine technology, double fuel combustion efficiency and significantly reduce transportation-related emissions. Several international collaborative initiatives, including combined heat and power, advanced coal technology, and hydrogen and clean fuels derived from coal will be pursued in support of global climate change mitigation strategies which were recommended by the President's Committee of Advisors on Science and Technology (PCAST).

Successful R&D in the electric power sector promises huge benefits to the nation. For example, combining high efficiency power generation with carbon sequestration technology has the potential to reduce global carbon emissions by more than 500 million tons per year by 2030, and by much more as existing powerplants retire and are replaced by improved technology. The increased economic activity associated with advanced coal and power system technologies could exceed $50 billion per year after 2010 and lead to over one-half million new jobs in the U.S.

Natural gas can also help the U.S. meet many of its environmental goals. Yet, to ensure the long-term supply and affordability of our cleanest fossil fuel, continued R&D is needed to improve exploration, production, processing, storage technologies,

and gas pipeline systems. Much of the nation's natural gas resource is locked in complex, difficult-to-reach formations. In many existing fields, natural gas has been bypassed by conventional exploration and production technologies and more than a quarter of our known gas supply fails to meet pipeline quality standards and cannot be used unless upgraded. A potentially vast quantity of natural gas exists in remote regions, but transportation costs are prohibitive and such gas will remain unmarketable until lower-cost approaches are developed to transport this gas to waiting markets. Guided by consultations with industry, the Department's FY 2001 budget will continue cost-sharing partnerships with the private sector to address these and other issues that are critical to ensuring long-term consumer confidence in the availability of affordable natural gas supplies and the reliability of the natural gas pipeline system.

The availability of reliable oil supplies is also key to our future economic growth and to national energy security. The U.S. currently depends on imports for over half of its oil supplies and by 2015 this dependence is projected to increase to more than 68 percent, with supplies concentrated in historically unstable regions. At the same time, U.S. oil production continues to decline as wells with high remaining production potential continue to be abandoned. To concentrate its resources on the most pressing problems, the Department's Fossil Energy program has organized its R&D activities in petroleum and natural gas to take maximum advantage of technologies that benefit both oil and gas production, for example the development of advanced seismic technologies, new drilling systems, and more cost-effective environmental compliance options.

This R&D could help stabilize domestic oil production by 2005, perhaps increasing the flow of oil from U.S. fields by over 500,000 barrels of oil per day, above business as usual projections by 2010. Advanced technologies developed in cost-shared programs with industry could also directly contribute to more than a third of the additional six trillion cubic feet per year of domestic gas production likely to be needed by 2010 to meet energy demands. Also, by working with industry, federal, state, and local regulatory authorities to ensure that risk-based environmental protection measures are sound and can be effectively implemented at potentially reduced costs, the Department can help cut environmental compliance costs in the oil and gas industry by $16.0 billion by 2010, allowing more resources to be applied to finding and producing needed supplies of domestic fuels.

Fossil Energy's Federal Energy Technology Center became the Department's 15th national laboratory, renamed the **National Energy Technology Laboratory** in December 1999. The two research facilities that comprise the newest national laboratory, are located in Morgantown, West Virginia and Pittsburgh, Pennsylvania, but are operated as a single entity.

The National Energy Technology Laboratory's core capabilities will be strengthened with the creation of a **"Center for Advanced Natural Gas Studies**." The new center will coordinate development of innovative technologies to improve the way gas is found and produced, as well as new ways to make the future use of natural gas cleaner and more efficient. It will also identify gaps in DOE's natural gas portfolio and recommend new efforts to ensure that future gas supplies remain abundant and affordable.

Budget Overview

The FY 2001 request for Fossil Energy Research and Development is $384.6 million including $9.0 million from prior year balances for a net request of $375.6 million. This level continues investments in advanced technological concepts such as, the capture and

sequestration of carbon dioxide, as well as the development of advanced power generation and fuel producing technologies that could significantly reduce carbon emissions from fossil fuel facilities. For a world that is nearly 90 percent dependent on fossil fuels, the development of new technologies for more affordable greenhouse gas control could advance the likelihood of a global commitment to meet the challenges of climate change.

The FY 2001 natural gas and petroleum program continues to emphasize technology transfer, especially to independent producers that make up an increasingly large share of the domestic oil and gas industry. The FY 2001 program also includes support for follow-on advanced oil recovery projects, especially where prior field tests have shown that such projects could make the difference in keeping oil flowing in fields that otherwise would be abandoned. Also, the FY 2001 budget implements an expanded infrastructure R&D program that now includes research on gas transmission and utility pipeline system and storage technology to enhance the nations's energy system reliability and strengthen consumer confidence in the capability of the pipeline system to meet future gas demand. In addition, the budget continues a long-term effort in methane hydrates, taking advantage of previous technological advancements in detection and production. The budget also sustains an investment in university and national laboratory research that strengthens the technological foundation for future oil and natural gas production advances.

In support of the President's **Clean Energy for the 21st Century International Initiative**, the program will include efforts to work with developing and transitioning countries to:

- identify opportunities to optimize powerplant performance through combined heat and power (CHP) applications, promoting U.S. technology exports;
- transfer best practices and DOE developed technologies that reduce leakage of methane (a potent greenhouse gas); and
- develop policies and regulatory infrastructures that promote open competitive markets and capital formation for the development of natural gas grids.

Taken together, these efforts accelerate the development and deployment of clean energy technologies around the world, will promote U.S. exports and create high-value jobs, and will assist countries power their economic development while fighting air pollution and climate change. The goal of the **Ultra-Clean Transportation Fuels Initiative** (UCTFI) is to promote, in partnership with the refining and transportation industries, the development and deployment of technologies that will produce ultra-clean, high performance transportation fuels for the 21st century from petroleum and non-petroleum sources. These will enable the introduction of advanced, highly efficient fuel/engine combinations being developed by DOE such as the Partnership for New Generation Vehicles (PNGV), which offers the promise of lower regional emissions and greater than double the miles per gallon of fuel. In the near term, ultra-clean transportation fuels can be produced from improved or new refinery upgrading technology. In the mid-to-long term, ultra-clean transportation fuels from natural gas and other carbonaceous feedstocks would enjoy a high level of compatibility with the existing infrastructure and could provide environmental benefits due to their suitability for use in advanced, high-efficiency vehicle engines.

The UCTFI will have two components: 1) R&D projects that lead to the production of sufficient quantities of fuel to validate performance and emissions, with testing to be done in collaboration with DOE's Office of Transportation Technologies; and 2) a supporting research program carried out by the national laboratories and co-sponsored with the fuel

industry, focused on the development of advanced fuel-making process components, materials, and chemistry needed for the manufacture of ultra-clean performing transportation fuels.

Fossil Energy's Federal Energy Technology Center became the Department's 15th national laboratory, so designated by the Secretary of Energy at a December 10, 1999

ceremony, and was renamed the National Energy Technology Laboratory. The two research facilities that comprise the newest national laboratory, are located in Morgantown, West Virginia and Pittsburgh, Pennsylvania, but are operated as a single entity.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Fossil Energy Research and Development					
Coal and Power Systems					
Central systems	121,812	115,257	89,364	-25,893	-22.5%
Distributed generation systems	43,069	44,499	42,200	-2,299	-5.2%
Sequestration R&D	5,825	9,217	19,500	10,283	111.6%
Fuels	16,710	20,275	15,700	-4,575	-22.6%
Advanced research	19,630	23,195	27,021	3,826	16.5%
Total, Coal and Power Systems	207,046	212,443	193,785	-18,658	-8.8%
Gas — Natural gas technologies	25,948	31,597	38,750	7,153	22.6%
Petroleum — Oil technology	47,344	57,252	52,569	-4,683	-8.2%
Cooperative research and development	6,657	7,389	5,836	-1,553	-21.0%
Fossil energy environmental restoration	11,000	10,000	9,041	-959	-9.6%
Import-Export Authorization	2,173	2,173	2,300	127	5.8%
Program direction and management support	69,481	75,479	75,064	-415	-0.6%
Plant and capital equipment	2,600	2,600	2,000	-600	-23.1%
Advanced metallurgical processes	5,000	5,000	5,225	225	4.5%
Subtotal, Fossil Energy Research and Development	377,249	403,933	384,570	-19,363	-4.8%
Use of prior year balances & other adjustments	-740	——	-9,000	-9,000	——
Total Fossil Energy Research and Development	376,509	403,933	375,570	-28,363	-7.0%

The National Energy Technology Laboratory's core capabilities will be strengthened by the creation of a "Center for Advanced Natural Gas Studies." The new center will coordinate development of innovative technologies to improve the way gas is found and produced, as well as new ways to make the future use of natural gas cleaner and more efficient. It will also identify gaps in the Department's natural gas portfolio and recommend new efforts to ensure that future gas supplies remain abundant and affordable.

FY 2001 Budget Request

Coal and Power Systems - $193.8 million

The FY 2001 R&D request for **advanced coal and power-related technologies** is $193.8 million. This funding level will permit the program to build on earlier research that has brought solutions to environmental problems, such as acid rain control, and to begin applying these advances to improvements that can reduce, or one day eliminate, emissions

of greenhouse gases and other air pollutants from coal. It will also allow for the development of advanced, high efficiency gas-based power generation, such as flexible gas turbines, low-cost fuel cells, and hybrid systems that can address energy needs in a restructured market and mitigate climate change.

The FY 2001 budget also continues to support two high-priority power generation technologies – **high-efficiency gas turbines** and **advanced fuel cells** – that could enhance the future use of natural gas, as well as ultimately contribute to higher-efficiency, coal-based power generation. In the advanced gas turbine program, DOE will: complete full-scale component/subsystem testing and engine manufacturing; prepare for full speed prototype testing, with the second turbine manufacturer of a new class of utility-scale gas turbines; and begin R&D on flexible mid-size gas turbines with unprecedented efficiencies and environmental performance ($26.0 million).

In **distributed generation applications**, the fuel cell program in FY 2001 ($42.2 million) will continue R&D to reduce costs and improve performance of market-ready systems within three years. In FY 2001, the program will begin testing a 300 kW to 1 MW size market prototype solid oxide fuel cell at a commercial site for distributed power applications. The fuel cells program will also focus on R&D to develop hybrid systems for Vision 21, as well as innovative concepts to dramatically reduce fuel cell fabrication costs.

The FY 2001 program continues to couple progress made to date in advanced fuel flexible gasification and combustion systems, coal conversion, advanced turbines, fuel cells, and environmental controls, with potentially revolutionary approaches to carbon sequestration, in a new concept called the "**Vision 21 Powerplex**." The "Vision 21 Powerplex" provides a roadmap that guides coal, other fuel flexible advanced power, and fuels R&D, toward a common goal of maximizing efficiency and improving environmental performance. In conjunction with the zero emissions goal of the Vision 21 program, carbon sequestration research continues to be emphasized and will be expanded in FY 2001 to focus on the development of advanced, low cost ($10/ton of carbon) methods for virtually eliminating carbon emissions. Together with efficiency improvements, this may be the single most important initiative for achieving cost-effective reduction of greenhouse gas emissions. Ultimately, as new technologies evolve, "Vision 21" could become the foundation for the "ultimate" fossil fuel-based energy facility, a concept that would integrate high-technology "energy islands," each producing power, fuels, and/or chemicals in the most efficient, flexible, and cleanest manner possible. In support of the President's **Clean Energy for the 21st Century International Initiative**, the program will include efforts to work with developing and transitioning countries to identify opportunities to optimize powerplant performance through combined heat and power (CHP) applications, promoting exports of U.S. technology.

As the program builds toward this long-range vision it will provide additional benefits. For example, in FY 2001, the program continues efforts to develop advanced technologies to control the release of fine particulates into the atmosphere from powerplants in response to the Environmental Protection Agency's revised **Particulate Matter ($PM_{2.5}$) ambient standards** for airborne particles. It also addresses concerns over mercury and other toxic emissions by examining ways to capture these impurities before they escape into the air.

The FY 2001 program also sustains research efforts to produce low emission, high combustion efficiency transportation fuels, premium chemicals, and high valued carbon

products from coal. These technologies are being developed to work individually or in combination with electric power generation processes contributing to a **Vision 21 Powerplex**. Three early-entrance studies for co-production plants (feasibility, research, and pre-design) were selected by competitive procurement to examine options for co-production. The program activities are the end result of a major effort to redirect the focus of the program to complement changes experienced or projected to occur in the transportation sector, such as the need for low sulfur ultra-clean transportation fuels and to support ongoing gas-to-liquids research and the Ultra–Clean Transportation Fuels Initiative both of which would utilize many of the same chemical processes. These ultra-clean transportation fuels when used in advanced vehicles being developed by DOE, will achieve a significant reduction in regional pollution emissions and would provide at least double the mileage per gallon of fuel.

Advanced research on **sequestration** is an emerging area of interest because the potential for greenhouse gas reduction, particularly carbon dioxide, is so great and because it is the most promising approach that is compatible with the existing energy infrastructure. Sequestration research includes a broad range of physical, chemical, and biological options, which will be done in collaboration with other DOE programs, national laboratories, other countries, and industries. In FY 2001, Fossil Energy will initiate development of biological CO_2 sequestration by converting it into useful products such as liquid fuels.

Petroleum – $52.6 million

The FY 2001 request for oil technology activities is $52.6 million. Improved oil production technologies are needed to help reverse the decline in domestic oil production and the corresponding dependence on oil imports, a key strategy detailed in the April 1998 Comprehensive National Energy Strategy (CNES). The majority of DOE's oil technology program continues to focus on providing independent producers with advances that can keep oil flowing from U.S. reservoirs that would otherwise be abandoned with conventional technology. In the FY 2001 budget, funding for a preferred **"Petroleum Upstream Management Practices" (PUMP)** program continues to focus on regional approaches to help producers quickly increase production. DOE will also revisit several high-priority reservoir classes where prior field tests have revealed that production issues can be overcome with better technology. Funding is also proposed for activities that can provide more cost-effective environmental protection in oil and gas operations and the production of fuels that release fewer emissions affecting global climate change. Throughout each of these efforts, a strong technology transfer program is supported.

Ultra Clean Transportation Fuels – $10.0 million

The FY 2001 request for **Ultra Clean Transportation Fuels** is $10.0 million. The program will initiate research, through competitive solicitations and the National Laboratory Partnership, to develop technology that overcomes limitations for making very low sulfur, clean-burning fuels. This will enable the continued use of high sulfur, heavy domestic crude oil, such as that produced from California and Alaska.

Natural Gas – $38.8 million

The FY 2001 request for gas resources and infrastructure R&D is $38.8 million. Domestic natural gas consumption is expected to rise to more than 30 trillion cubic feet per year by 2015 (a one-third increase) because of its highly competitive cost, its cleanliness, and its

efficiency. Gas can also provide a low cost means to slow the rate of carbon dioxide emissions and will be a significant energy source for moderating carbon emissions well into the middle of the 21st century. New resources of gas, such as methane hydrates, could prove to be a considerable source of production worldwide. The supply portion of the gas budget, $12.4 million, will continue to focus on advanced technologies that can locate and produce gas that otherwise would be bypassed or unmarketable. A $2.0 million R&D program in methane hydrates is being developed with the goal of understanding the role of gas hydrates in the global carbon cycle, and evaluating their potential as future reserves.

A $13.2 million infrastructure R&D program is also being developed to enhance energy system reliability. There is increasing concern about the integrity of the gas delivery and storage infrastructure meeting future demands. The integrity and efficiency of the gas infrastructure may be the most critical barrier to achieving a 30 TCF economy given the age of the existing pipelines, uncertain regulatory climate, and lead times required for new pipeline construction. New tools, piping materials, and mechanical technologies will be developed to meet and expand future system demand including maintaining the current system throughput. To compliment these efforts, and in support of the President's **Clean Energy for the 21st Century International Initiative**, the Gas R&D program will include efforts to work with developing and transitioning countries to transfer best practices and DOE developed technologies that reduce leakage of methane (a potent greenhouse gas), and develop policies and regulatory infrastructures that promote open competitive markets and capital formation for the development of natural gas grids.

Advanced Metallurgical Processes - $5.2 million

DOE is requesting $5.2 million for **Advanced Metallurgical Processes.** In FY 2001, the program will continue its research in advanced materials that can contribute to the Office of Fossil Energy's "Vision 21 Powerplex" concept. In addition, research will continue on metallurgical techniques to extend the life of materials and/or find substitute materials and processing paths for materials that are environmentally hazardous.

Highlights of Program Changes ($ in millions)

Central Systems *(FY 2000 $115.3; FY 2001 $89.4)* **-$25.9**

A reduced request for Central Power Systems reflects the wrapping up of the utility scale Advanced Turbine Systems program and the initiation of R&D on advanced, high efficiency, low-emissions, flexible mid-size turbines. International collaborative activities for combined heat and power are also included in the request. The program also expands the Indirectly Fired Cycle technology effort focusing on critical combustion-based R&D for Vision 21.

Sequestration *(FY 2000 $9.2; FY 2001 $19.5)* **+$10.3**

Increase provides for a Center of Excellence for Carbon Sequestration to advance the applied science and technical understanding of carbon dioxide sequestration pertaining to geologic structures and oceans, and for expanded R&D partnerships with industry.

Fuels *(FY 2000 $20.3; FY 2001 $15.7)* **-$4.6**

Continue development of technology for the co-production of clean transportation fuels, chemicals, and hydrogen in combination with clean power and heat, including the feasibility and research studies for the Early Entrance Co-production plant. Continue development of enabling technology for producing ultra-clean transportation fuels from coal and other

feedstocks. Continue development of premium carbon products, environmentally preferred feedstocks, resource reclamation, and pre-combustion control of air toxins.

Advanced Research ***(FY 2000 $23.2; FY 2001 $27.0)*** **+$3.8**

Increases in funding provide for: continued research of CO_2 capture and sequestration; development of the virtual demonstration plant; advanced materials research; enabling technology development; and support for a Center of Excellence for Advanced Research for Energy Plants of the Future, international collaboration, and supporting analysis.

Infrastructure ***(FY 2000 $1.0; FY 2001 $13.2)*** **+$12.2**

Increases in funding provide for optimization of the natural gas distribution system, expanded transmission and distribution technology, and advanced engineering technologies for gas storage development. Gas research is directed at ensuring the reliability and optimization of the gas transmission and distribution network, optimizing deliverability enhancement technologies for gas storage fields, developing advanced storage technologies for high deliverability facilities, developing advanced materials research and enabling technology development for a longer life, high-strength, non-corrosive pipeline, developing obstacle detection systems for horizontal boring applications in distribution pipes, developing pipeline leak and intrusion detection systems using optical methods, developing pipeline inspection sensors with internal leak sealing capabilities, and developing a portable methane leak detection system for real-time visualization of gas pipeline systems.

Ultra-Clean Transportation Fuels Initiative ***(FY 2000 $0.0; FY 2001 $10.0)*** **+$10.0**

Manufacturing costs, impurity removal limitations, molecular chemistry, conversion catalysts, feedstock variables in impurity content, and vehicle engine performance are just six of the many factors that must be addressed in making fuels cleaner in performance than present-day gasoline and diesel fuels. Industry-government projects, based on solicitations, will be initiated to demonstrate advanced fuel-making processes at pre-commercial scale, generating sufficient advanced fuel to enable engine/fuel verification testing. Supporting processes and other improvements will be initiated for advanced fuel-making including laboratory research by national laboratories. (This initiative was supported in the Emerging Process Technologies and the Transportation Fuels and Chemicals programs in FY 2000.)

Naval Petroleum & Oil Shale Reserves

Mission

The Naval Petroleum and Oil Shale Reserves' mission is to manage, operate, protect, maintain, and produce the oil and gas from the Reserves in a manner that achieves the greatest value and benefits to the United States.

Program Overview

The Naval Petroleum and Oil Shale Reserves continues to work on completing close-out responsibilities associated with the February 1998 sale of its largest property, the Elk Hills oil field. These activities include settling final equity shares with Chevron USA, Inc., a co-owner of Elk Hills, and environmental and cultural resource assessment work associated with transferring the property. The sale was mandated by the National Defense Authorization Act of FY 1996, Public Law 104-106.

Lease management of Naval Petroleum Reserve No. 2, located in Kern County, California continues. Responsibilities include environmental oversight, resource assessment, and royalty evaluation.

Public Law 105-85 required the transfer of administrative jurisdiction of Naval Oil Shale Reserve No. 1 (NOSR-1) and NOSR-3 to the Department of the Interior (DOI) for leasing. The transfer of the undeveloped lands (NOSR-1) was accomplished upon enactment, November 18, 1997. The developed portions (NOSR-3) were transferred on May 1, 1999, coinciding with DOI's leasing of these lands. The properties, located in Garfield County, Colorado, are adjacent to one another.

The Department currently retains ownership responsibility for a third oil shale reserve, Naval Oil Shale Reserve No. 2. In January, DOE, together with the Department of the Interior, the State of Utah, and the Ute Tribe agreed to support legislation that would transfer 84,000 acres of the 89,000 acre Reserve to the Northern Ute Tribe. Under the agreement, a portion of any royalties from future energy production on the lands would go into a fund to help clean up and remove 10.5 million tons of radioactive mill tailings near Moab, Utah. Another provision would put into place additional environmental protections for a 75-mile stretch of the Green River, and the Ute Tribe would establish a one-quarter mile land corridor along this section of the river and protect it as an environmentally sensitive area. If enacted by the congress, the transfer of this land would become the largest voluntary return of land to Native Americans in the lower 48 states in more than a century.

Production of Naval Petroleum Reserve No. 3 (Teapot Dome) located near Casper, Wyoming will be maintained at maximum efficient rates. Under the Rocky Mountain Oilfield Testing Center (RMOTC) program, the Naval Petroleum and Oil Shale Reserves offers the site to the oil industry for use as a working laboratory on a cost-sharing basis. The program is considering options for privatizing RMOTC in FY 2001. In the meantime, work at Teapot Dome will focus on environmental remediation in preparation for the lease,

sale, or transfer to DOI or other divestment when the oil field reaches the end of its economic life as authorized by Public Law 105-261.

Budget Overview

No new funds are requested for FY 2001. During the fiscal year, ongoing activities will be funded from prior year balances which resulted, in large part, from terminating operations at NPR-1 during FY 1998 when the field was sold. FY 2001 activities include the continued operation and environmental remediation activities of the Teapot Dome oil field; the Rocky Mountain Oilfield Testing Center; environmental and cultural resource assessments at NPR-1, with some remediation activity anticipated; finalization of NPR-1 equity shares with Chevron; and continued oversight of the NPR-2 property and leases.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Naval Petroleum & Oil Shale Reserves	20,650	21,240	20,775	-465	-2%
Use of Prior Year Balances	-6,697	-21,240	-20,775	465	2%
Total, Naval Petroleum & Oil Shale Reserves	13,953	——	——	——	——

FY 2001 Budget Request

The FY 2001 budget of approximately $20.8 million is to be funded entirely from prior year balances. Thirty-five FTEs will support the Naval Petroleum and Oil Shale Reserve efforts, a reduction of four FTEs from FY 2000. NPR-3 will continue to produce oil, gas, and natural gas liquids and sell them competitively to commercial markets.

NPR-1 and NPR-2 - $4.8 million

Prior year funding of $4.8 million will provide for post sale closeout activities at NPR-1 and for oversight of the NPR-2 property and associated leases during FY 2001. NPR-1 post sale closeout activities include ongoing engineering work related to the finalization of equity with Chevron; completing environmental restoration and remediation activities; financial close-out of contracts; documentation and characterization of environmental status; and costs associated with ongoing litigation. NPR-2 oversight includes management of the Reserve and its leases, collecting royalties, and environmental monitoring.

NPR-3 and RMOTC - $7.9 million

Prior year funds of approximately $7.9 million will be used for conventional oil field operations and management while preparing for an orderly abandonment of NPR-3 in future years. NPR-3 is projected to operate economically through FY 2005, depending upon oil prices and the stability of production. The program is also increasing efforts to privatize its Rocky Mountain Oilfield Testing Center (RMOTC) program in FY 2001. Environmental remediation activities will be increased at NPR-3 in anticipation of the Department's eventual lease, sale, or transfer of the property as authorized in Public Law 105-261.

Program Direction - $8.0 million

The budget provides $8.0 million for program direction to be funded from prior year balances. Program direction provides for salaries, benefits, and all overhead expenses such as supplies, travel, support services, and final equity determination management.

Revenues

Ongoing program operations generate revenues from the sale of crude oil, natural gas, and associated hydrocarbons. Deposits to the Treasury Miscellaneous Receipts Account are estimated to be $6.3 million in FY 2001.

Naval Petroleum Reserve **$0.0**

No appropriation is requested for FY 2001. Activities are to be funded from prior year balances.

- Decrease in planned NPR-1 closeout activities such as final equity determination and environmental and cultural resource assessments. *(FY 2000 planned obligation from prior year balances $6.9, FY 2001 $4.8)* $-2.1
- Decrease in production related operations, environmental restoration activities, and general operational support at NPR-3. *(FY 2000 planned obligations from prior year balances $8.3; FY 2001 $7.9)* $-0.4
- Increase in program direction requirements and FTEs. *(FY 2000 obligations from prior year balances: $6.0; FY 2001 $8.0)* $+2.0
- Decrease in overall expenditures of prior year balances *(FY 2000 use of prior year balances $21.2; FY 2001 $20.8)* $-0.4

Elk Hills School Lands Fund

Mission

The National Defense Authorization Act for Fiscal Year 1996, Public Law 104-106, authorized the settlement of longstanding "school lands" claims to certain Elk Hills lands by the State of California. The Settlement Agreement between the Department and the State, dated October 11, 1996, provides for payment of nine percent of the net sales proceeds generated from the divestment of the government's interest in Elk Hills, subject to the appropriation of funds. Under the terms of the Act, a contingency fund containing nine percent of the net proceeds of sale has been established in the U.S. Treasury and is reserved for payment to the State, subject to the appropriation of funds.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000
Elk Hills School Lands Fund	36,000	——	36,000	36,000 ——

Budget Overview

The first installment payment was appropriated in FY 1999. No appropriation was provided in FY 2000, and the FY 2000 Interior and Related Agencies Appropriations Act provided an advance appropriation of $36.0 million to become available in FY 2001. The FY 2001 budget requests an advance appropriation for payment to the State for the fiscal years 2002 - 2006 to be made available on October 1 of each fiscal year, as follows: for FY 2002, $36.0 million; for FY 2003, $36.0 million; for FY 2004, $36.0 million; for FY 2005, $60.0 million; and for FY 2006, $60.0 million.

Energy Conservation

Mission

The mission of the **Office of Energy Efficiency and Renewable Energy** (EERE) is to work with its customers to help our country acquire a stronger economy, a cleaner environment, and a more secure future by developing and deploying efficient and renewable energy technologies.

Program Overview

The Office of Energy Efficiency and Renewable Energy (EERE) is funded in two Appropriations. Renewable Energy programs are in the Energy Supply portion of the Energy and Water Development Appropriation (discussed earlier in the Highlights) and Energy Conservation programs are funded in the Interior and Related Agencies Appropriation.

The Energy Conservation programs are designed to significantly improve the fuel economy of automobiles and other vehicles, to increase the productivity of the nation's most energy-intensive industries, and to improve the energy efficiency of buildings and appliances. EERE's programs work in voluntary cost-shared partnerships with the nation's industries, utilities, states, and the public.

Transportation

The Office of Transportation Technologies (OTT) funds research, development, and deployment of technologies that can significantly alter current trends in oil consumption and reduce pollution and emissions of greenhouse gases. The technologies include: advanced direct-injection engines, hybrid-electric drive systems, advanced batteries, fuel cells, light weight materials, and alternative fuels (including ethanol from biomass, natural gas, methanol, electricity, propane, hydrogen, and biodiesel).

The industry/government **Partnership for a New Generation of Vehicles (PNGV)**, focuses on significantly improving the fuel economy of automobiles and reducing associated emissions. Cost-shared research and development activities emphasize four key technology areas: hybrid-electric drive systems, advanced direct-injection engines, fuel cells, and lightweight materials. In particular, OTT is working to advance the PNGV goal of developing, by 2004, the production prototype of mid-sized cars capable of 80 miles per gallon with a two-thirds reduction in nitrogen oxides (NO_x) and carbon dioxide (CO_2) emissions, without compromising safety, comfort, performance, and affordability.

The goals of the **Heavy Vehicle R&D** program are to: develop, by 2004, advanced ultra-low emission diesel engine technologies that enable pickup trucks, vans, and sport utility vehicles to achieve at least a 35 percent efficiency improvement relative to current gasoline engines; improve the engine efficiency of heavy duty trucks from 45 percent to 55 percent while reducing emissions to near-zero levels; reduce parasitic loses from aerodynamic drag and rolling resistance; and make greater use of lower weight, high strength materials for all truck classes.

Industry

Industry consumed almost 35 quadrillion (quads) of primary energy in 1997 - about 38 percent of all energy used in the United States. Over 80 percent of the energy consumption in manufacturing occurs in only seven process industries: forest products; steel; aluminum; metal casting; chemicals; petroleum refining; and glass. Mining and agriculture are major energy users in the extraction industry. These nine industries are highly capital intensive, produce significant emissions and waste products with far larger energy and pollution abatement costs per unit sales, and because of this, typically invest far lower percentages of sales into research and development than the U.S. industry average. Overall energy intensity (energy per unit output) decreased from 1973 through 1986, but has since remained nearly level, while pollution abatement costs have continued to grow, due in significant part to energy consumption.

The Office of Industrial Technologies (OIT) supports development of cross-cutting technologies such as gasification, microturbines, and reciprocating engines, and provides financial and technical assistance to improve the competitive position of U.S. industry. Support for advanced turbine systems is focused at low emissions advances, controls, and hot section components for industrial scale systems. OIT is emphasizing **Bioenergy/Bioproducts Initiative** for both forest products and agriculture. OIT has also funded 16 technologies which have become R&D 100 Award winners over the last seven years. Ten of these were achieved in the last four years under the Industries of the Future strategy.

Buildings

The **Buildings Research and Standards** program integrates building codes, research, and development activities. The program works to optimize building functions by targeting lighting, heating, cooling, and ventilation, as well as construction practices, delivery mechanisms, and efficient use of resources. R&D efforts are directed to building equipment, materials, design tools, and the associated codes and standards. In addition, the Buildings program develops joint industry-government technology roadmaps meant to focus primary R&D efforts.

The **Technology Assistance Program** accelerates the deployment of new technologies and the adoption of advanced building practices through technical and financial assistance, outreach, and selective demonstration activities. An example is the **Energy Star** program, jointly administered with EPA, which identifies outstanding energy efficient and environmentally beneficial products. Demonstration efforts use cost-sharing partnerships to accelerate technologies into the marketplace. In addition, the **State Energy Program** makes grants to state and local governments to create a national network for energy efficiency. The **Weatherization Assistance Program** engages state and local partners to increase the efficiency of homes occupied by low-income citizens - particularly the elderly, persons with disabilities, and families with children.

Federal Energy Management Program

As the nation's largest single energy user, the federal government spends roughly $8.0 billion each year on energy used in its facilities and operations. The **Federal Energy**

Management Program (FEMP) achieves significant federal cost savings and associated environmental benefits by assisting federal agencies to identify, finance, and implement energy efficiency and renewable energy projects and by helping to manage utility costs in federal facilities.

FEMP provides technical assistance and training in a wide variety of areas and works with other agencies to facilitate their own energy efficiency and renewable technology activities.

FEMP manages 26 government-wide Super-Energy Saving Performance Contracts (ESPCs) which any agency can use. By the end of FY 2000, FEMP will have put into place another 17 contracts. These streamlined Super-ESPC contracts use private capital to provide energy efficiency services to federal facilities across the nation and allows federal agencies to pay for these services through energy cost savings.

Budget Overview

The FY 2001 budget request for Energy Conservation is $850.5 million, 12.1 percent above the FY 2000 enacted level. The FY 2001 budget for the total Energy Efficiency and Renewable Energy program, including both the Energy Conservation and Solar and Renewable energy activities is $1,260 million (gross), 18 percent above the FY 2000 enacted level.

All of EERE's R&D activities are key components of the **President's Climate Change Technology Initiative**. Increases in FY 2001 reflect the continued support of the Administration for Energy Efficiency and Renewable Energy programs as a cost-effective solution to reducing greenhouse gas and other emissions, improving U.S. energy security, and advancing the nation's economic competitiveness.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Energy Conservation					
Building technology, state and community sector	261,135	283,998	339,759	55,761	19.6%
Federal energy management program	23,764	23,918	29,468	5,550	23.2%
Industry sector	162,775	175,200	184,026	8,826	5.0%
Transportation sector	198,665	232,760	250,870	18,110	7.8%
Policy and management	38,039	42,866	46,377	3,511	8.2%
Subtotal, Energy Conservation	684,378	758,742	850,500	91,758	12.1%
(Subtotal, Energy Conservation grants non-add)	*(166,000)*	*(168,500)*	*(191,000)*	*(22,500)*	*(13.4%)*
(Subtotal, Energy Conservation R&D non-add)	*(518,378)*	*(590,242)*	*(659,500)*	*(69,258)*	*(11.7%)*
Use of prior year balances & other adjustments	-65,383	——	——	——	——
Total, Energy Conservation	618,995	758,742	850,500	91,758	12.1%

FY 2001 Budget Request

The FY 2001 budget request supports EERE's work on research, development, and deployment activities that lead to energy savings, enhanced industrial productivity and competitiveness, environmental benefits, and carbon emissions reductions.

Transportation Sector Programs *(FY 2000 $232.8; FY 2001 $250.9)*

- **Partnership for a New Generation of Vehicles** *(FY 2000 $129.1; FY 2001 $142.5)* R&D is focused on the goal of developing an 80 mile-per-gallon family car with no compromises to size, safety or performance, achieving a production prototype by 2004. In FY 2001, DOE will continue efforts in the areas of fuel cells, advanced direct-injection engines, exhaust control, advanced batteries, and electronic power controllers. (Note: Amounts exclude $5.0 million from Office of Science in both FY00 and FY01. In addition, $7.5 million of PNGV provides for interface between and support for the Enhanced Ultra Clean Transportation Fuels Initiative and PNGV efforts.)
- **Clean Cities** program efforts (*FY 2000 $7.7; FY 2001 $10.0)* will advance vehicle deployment and infrastructure development in over 75 participating communities. Several of these local programs are linking across regional and state boundaries and within national parks to strengthen efforts, expand purchasing power, and establish a refueling infrastructure along Clean Corridors to enable the inter-city travel of alternative fuel vehicles.

Industry Sector Programs *(FY 2000 $175.2; FY 2001 $184.0)*

- "**Industries of the Future - Specific**" public-private partnership efforts *(FY 2000 $66.0; FY 2001 $83.9)* focus on developing new process-related technologies. FY 2001 cost-shared efforts concentrate on new bio-energy initiatives with the forest products, agriculture, and supporting industries, for example forging and heat treating. In addition, additional support for the mining, agriculture, and petroleum industries is provided.
- "**Industries of the Future - Crosscut**" *(FY 2000 $94.4; FY 2001 $90.8)* develops technologies that are useful to multiple industries. The program supports research to develop power generation equipment, combustion equipment, sensors and controls, and advanced materials that can be used to reduce wear and corrosion. FY 2001 efforts focus on the development of gasification technology, reciprocating engines, low emission technologies, controls, and hot section components for industrial scale advanced turbines.

Building Sector Programs *(FY 2000 $284.0; FY 2001 $339.8)*

- **Building Research and Standards** *(FY 2000 $75.4; FY 2001 $100.1)* funds: Technology Roadmaps and Competitive R&D *($11.0 million)* for new cost-shared projects that offer the greatest energy savings and environmental benefits in key technologies; Residential Building Integration *($13.5 million),* which includes the **Building America** initiative to support development of more than 2,000 new homes using highly efficient, advanced building technologies and building techniques; Commercial Buildings Integration *($6.5 million)* which works to realize energy-saving opportunities through a whole buildings approach as well as regulatory activities; and Equipment, Materials, and Tools research *($69.1 million)* which addresses appliance standards activities.
- **Building Technology Assistance** *(FY 2000 $189.5; FY 2001 $225.0)* incorporates grants, community partnerships, and **Energy Star** programs to deploy the results of the building R&D programs. The **Weatherization**

Assistance Program *(FY 2000 $135.0; FY 2001 $154.0)* supports the weatherization of 76,900 low-income homes, while the **State Energy Program** *(FY 2000 $33.5; FY 2001 $37.0)* supports grants that promote innovative state energy efficiency and renewable energy activities. The **Community Energy Program** *(FY 2000 $18.2; FY 2001 $27.5)* helps states, cities, business improvement districts, homebuilders, retailers, public institutions, and non-profits establish more energy efficient and comfortable buildings. The Energy Star Program *(FY 2000 $2.7; FY 2001 $6.5)* identifies and promotes appliances, equipment, homes, and buildings that significantly exceed present energy efficiency standards.

- **The Federal Energy Management Program** *(FY 2000 $23.9; FY 2001 $29.5)* will continue to emphasize projects which use private sector funding to finance energy conservation projects through the resulting energy savings. Efforts will also target placing 20,000 solar roofs on federal facilities by 2010 as part of the President's **Million Solar Roofs Initiative**.

Highlights of Program Changes ($ in millions)

Transportation Sector *(FY 2000 $232.8; FY 2001 $250.9)* **+$18.1**

- **Hybrid Systems R&D** *(FY 2000 $43.0; FY 2001 $47.8)* $4.8

  Increases for high power energy storage systems to improve the calendar life of batteries and reduce the cost of components, and advanced power electronics to lower costs of the vehicle electrical power system and its controls.

- **Advanced Combustion Engine R&D** *(FY 2000 $47.8; FY 2001 $53.9)* +$6.1

  Increases to greatly improve fuel economy and reduce harmful emissions from direct injection engines. Goal is to develop technologies that can meet stricter California air standards and 2004 EPA Tier II emission regulations.

- **Fuels Utilization** *(FY 2000 $21.6; FY2001 $24.5)* +$2.9

  Increase to develop new fuel formulations for use in advanced high efficiency power plants.

- **Fuel Cell R&D** *(FY 2000 $37.0; FY 2001 $41.5)* +$4.5

  Increase for integrated systems combining fuel cell stacks and fuel processors, and balance of plant components will be completed.

- **Cooperative Automotive Research for Advanced Technologies (CARAT)** *(FY 2000 $1.6; FY 2001 $2.8)* +$1.2

  Increase for competitively awarded work with small businesses and universities on innovative technologies, and support for the Graduate Automotive Technology Education (GATE) program to build a highly qualified workforce, address technical barriers, and develop advanced, graduate level automotive curricula.

- **Technology Deployment** *(FY 2000 $12.8; FY 2001 $17.0)* +$4.2

  Increase for: the **Clean Cities** program to deploy alternative fueled vehicles and promote infrastructure development, advanced vehicle testing and evaluation, and state grants.

- **Management and Planning** *(FY 2000 $8.5; FY 2001 $9.6)* +$1.1

  Increase for cost estimation of advanced vehicle technologies and salary COLAs.

Industry Sector *(FY 2000 $175.2; FY 2001 $184.0)* **+$8.8**

- **"Industry of the Future - Specific"** *(FY 2000 $66.0; FY 2001 $83.9)* +$17.9

  Increases in the following R&D partnerships: Agriculture *(+9.0)*, Forest and Paper Products *(+5.0)* areas largely for the **Bioenergy/Bio-products Initiative**; Mining *(+1.0)* and Petroleum Refining *(+1.0)*; and a new initiative for Supporting Industries *(+1.8)*.

- **"Industries of the Future - Crosscutting"** *(FY 2000 $94.4; FY 2001 $90.8)* -$3.6

  Technical Assistance *(+6.1)* largely for International Best Practices. Offset by a decrease in Distributed Generation *(-10.0)* due to successful completion of the Advanced Turbine System (ATS) program.

- **Management and Planning** *(FY 2000 $8.9; FY 2001 $9.3)* +$0.4

  Increases for planning, evaluation, and salary COLAs.

Building Technology, State and Community Sector *(FY 2000 $284.0; FY 2001 $339.8)* **+$55.8**

- **Building Research and Standards** (FY 2000 $75.4; FY 2001 $100.1) +$25.0

  Increase supports "whole-buildings" design technologies and practices for residential *(+1.5)* and commercial *(+2.2)*; Equipment, Materials, and Tools research *(+16.8)*; and the Technology Roadmaps and Competitive R&D program *(+4.1)*.

- **Building Technology Assistance - non-grants** *(FY 2000 $20.9; FY 2001 $34.0)* +$13.1

  Increases for Community Partnership activities *(+9.3)*, such as **Building America**, to develop new home communities, and **EnergyStar** labeling efforts with EPA *(+3.8)*.

- **Building Technology Assistance** - State grants (*FY 2000 $168.5; FY 2001 $191.0)* +$22.5

  Increases for the **Weatherization Assistance Program** *(+$19.0)* to weatherize 74,800 low-income homes and the **State Energy Program** grants *(+$3.5)* to promote innovative state energy efficiency and renewable energy activities.

- **Management and Planning** *(FY 2000 $13.2; FY 2001 $14.7)*

  Increases in planning, evaluation, and salary COLAs. +$1.5

Federal Energy Management Program (FEMP) *(FY 2000 $23.9; FY 2001 $29.5)* **+$5.6**

- **Project Financing** *(FY 2000 $9.8; FY 2001 $10.4)* +$0.6

  Increase expands agency participation, centralization, and coordination of FEMP services.

- **Direct Technical Guidance and Assistance** *(FY 2000 $7.5; FY 2001 $10.2)* +$2.7

  Increase for project design assistance, software development, and training.

- **Interagency coordination efforts, policy development, outreach, and the Regional Energy Action Teams** increase *(FY 2000 $4.4; FY 2001 $5.4)* +$1.0

  Increases for supportive policy development, increased outreach activities, and to expand Regional Energy Action Team's FEMP efforts in the field.

- **Management and Planning** *(FY 2000 $2.2; FY 2001 $3.5)* +$ 1.3

  Increases for planning, evaluation, and salary COLAs.

Policy and Management *(FY 2000 $42.9; FY 2001 $46.4)* **+$3.5**

- **Headquarters** *(FY 2000 $17.7; FY 2001 $16.5*) -$1.2

  Decrease associated with the FY 2000 completion of a National Academy of Sciences study.

- **Golden Field Office** (*FY 2000 $5.4; FY 2001 $5.8)* and **Regional Support Offices** *(FY 2000 $15.5; FY 2001 $17.8)* +$2.7

- **International Market Development** *(FY 2000 $2.6; FY 2001 $4.6)* +$2.0

Economic Regulation

Mission

Offices financed in the **Economic Regulatory Administration** appropriation are modifying their mission as a result of significant reductions in their activities related to Petroleum Overcharge and related legislation. The Compliance activity organized within the Office of General Counsel has declined and requires no new appropriations as prior year balances are adequate to finance shutdown activity. The follow-on regulatory activities administered in the Office of Hearings and Appeals will come after the completion of the compliance activity. As a result, appropriations will be necessary in FY 2001.

Program Overview

Office of General Counsel (Compliance)

This program administers the enforcement activities resulting from a wide spectrum of oil pricing and allocation regulations that governed the petroleum industry throughout most of the 1970s. The program is currently in the process of litigating and negotiating settlements of previously developed cases, of which approximately ten still remain unresolved. The need for additional litigation and settlement activity may develop as the remaining enforcement cases are concluded.

Hearings and Appeals

The Office of Hearings and Appeals (OHA) is responsible for all of the Department's adjudicatory processes other than those administered by the Federal Energy Regulatory Commission. OHA's enforcement work is nearing completion. However, OHA continues to conduct refund proceedings returning petroleum overcharge funds, collected by DOE, to injured parties, states, and the federal government for indirect restitution. Funding for these activities is sought under Economic Regulation in the Interior and Related Agencies appropriations.

Over the years, OHA has gained jurisdiction over a wide variety of other matters including: the Freedom of Information Act and Privacy Act Appeals; evidentiary hearings to determine an employee's eligibility for a security clearance; and requests for exception from DOE regulations and orders, such as the reporting requirements to the Energy Information Administration and investigating and adjudicating whistle blower complaints. Funding for these activities is being sought in Energy and Water Development appropriations.

Budget Overview

Office of Hearings and Appeals

The FY 2001 budget request of $2.0 million is for refund application processing and for related activities arising from the regulatory program initiated under the Emergency Petroleum Allocation Act of 1973. Excess monies from refund processing are transferred to the Treasury Department for deficit reduction.

Economic Regulation

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Economic Regulation					
Office of Hearings and Appeals	1,785	1,992	2,000	8	0.4%

FY 2001 Budget Request

Office of Hearings and Appeals is seeking $2.0 million of new budget authority to conduct its regulatory program. Most expenses are related to its professional staff with personnel compensation and benefits expenses equal to $1.5 million, and other services equal to $0.5 million. Support services are primarily provided within the Department's Working Capital Fund, and include rent, supplies, printing and communication, and information technology. In FY 2001, the Office of Hearings and Appeals expects to resolve 850 refund cases and to refund about $82.0 million in direct restitution to these applicants. OHA also intends to begin final distributions in its crude oil refund proceeding in FY 2001, provided that DOE concludes all enforcement proceedings so that the amount available for distribution is known.

Highlights of Program Changes ($ in millions)

Office of Hearings and Appeals *(FY 2000 $2.0; FY 2001 $2.0)* **$0.0**

No change.

Strategic Petroleum Reserve

Mission

The mission of the **Strategic Petroleum Reserve** (SPR) is to reduce U.S. vulnerability to economic, national security, and foreign policy consequences of petroleum supply interruptions. SPR minimizes the threat of supply disruptions by other nations by being prepared to respond rapidly to such threats, in concert with the International Energy Agency's alliance of 25 industrial nations, by adding crude oil supplies to world markets at the direction of the President.

Program Overview

Program performance criteria require that, within 15 days notice, the SPR maintain the capability to transition from operational readiness to a sustainable crude oil drawdown of 4.1 mmb/day. The SPR maintains this continual readiness posture through a comprehensive program of systems maintenance, exercises, and tests. SPR systems are designed and operated to assure mission reliability and availability. In 1994, SPR began a $328.0 million investment to extend the life of the Reserve's physical systems through the year 2025. This **Life Extension Program** (LEP), which will be completed during FY 2000, is achieving long-term system reliability by streamlining site configurations and standardizing equipment across the Reserve to reverse obsolescence and reduce future maintenance and operating costs. Due to concerns about long-term structural integrity, the Weeks Island site was decommissioned in December 1999. Follow-on monitoring will assure geotechnical stability, mine integrity, and emergency response capability. The loss of approximately 70 million barrels of capacity at Weeks Island was partially offset by cavern growth caused by operations. SPR now maintains a storage capacity of 700 million barrels at the four remaining sites and holds an inventory of 567 million barrels of crude oil. This inventory provided the equivalent of 58 days of net import protection.

U.S. Department of Energy
Royalty in Kind Receipts
(barrels n thousands)

Actual FY 1999	Projected FY 2000	Projected FY 2001
5,450	16,596	5,954

By the end of FY 2000, the inventory will be increased to 582.3 million barrels through the **Royalty-In-Kind** cooperative program with the Department of Interior representing 55 days of net import protection. The Royalty-In-Kind program will provide the equivalent of 28 million barrels of off-shore Gulf Coast royalty oil to SPR in lieu of royalty payments to the U.S. Treasury. By the end of FY 2001, the 587.3 million barrels of crude oil in the Reserve will be capable of replacing 37 percent of

U.S. imports for a sustained drawdown rate of 4.1 million barrels per day for 90 days. In terms of days of net import protection, the FY 2001 inventory will be equivalent to 53 days.

Budget Overview

The FY 2001 budget request for the Strategic Petroleum Reserve Account provides $158.0 million for storage site operations and maintenance, security, monitoring possible intrusion of gas into the oil inventory, and continues drawdown systems testing and readiness. The FY 2001 request also includes a rescission of $7.0 million from the SPR Petroleum Account's prior year balances. A supplemental budget request for FY 2000 will be submitted with the FY 2001 budget request. The supplemental w

ill provide for the rescission of $12.0 million from the SPR Petroleum Account. After the FY 2000 rescission of $12.0 million and the FY 2001 rescission of $7.0 million, the remaining balance in the SPR Petroleum Account will be approximately $14.0 million. These funds are being held to support the Royalty in Kind DOE/DOI program and to provide a source of funds to support the start up incremental costs of an energy supply drawdown. This balance will provide around 25 percent of the incremental costs of a six month drawdown. Should additional funding be required prior to the receipt of sales proceeds, the program is authorized to use balances which may be available from other programs within the Department of Energy.

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Strategic Petroleum Reserve					
Strategic facilities development					
SPR — Facilities development	160,120	158,396	158,000	-396	-0.3%
Use of prior year balances and other adjustments	-195	——	——	——	——
Total, Strategic facilities development	159,925	158,396	158,000	-396	-0.3%
SPR Petroleum Account					
Rescission	——	-12,000	-7,000	5,000	41.7%
Use of prior year balances and other adjustments	——	12,000	——	-12,000	-100.0%
Total, Strategic Petroleum Reserve	159,925	158,396	151,000	-7,396	-4.7%

FY 2001 Budget Request

The FY 2001 budget request for SPR operations and management is $158.0 million, a 0.25 percent reduction from the FY 2000 appropriation of $158.4 million. The small decrease reflects the resumption of post-Life Extension Program projects to full standby operations and maintenance activities, offset by the reduction in funding for the Life Extension Program and the completion of Weeks Island decommissioning.

This request maintains a highly reliable level of operational readiness consistent with program Level 1 Performance Criteria, continues the Drawdown Readiness Program, performs annual drawdown readiness exercises, continues the environmental safety and health (ES&H) program, and funds the management of the SPR program.

Highlights of Program Changes ($ in millions)

Strategic Petroleum Reserve **-$0.4**

- Reflects completion of LEP in the year 2000 to assure the capability of SPR to effectively perform its mission through the year 2025. -$9.1
- Change reflects resumption of post-Life Extension Program projects to full standby operations and maintenance activities following systems testing. -$0.7
- Increase reflects major maintenance design and construction activities, offset by completion of site decommissioning. +$7.6
- Increase reflects full funding for management. These activities were partially financed by prior year balance in FY 2000. +$1.8

Energy Information Administration

Mission

The **Energy Information Administration** (EIA) is a leader in providing high quality energy information to government, industry, and the public to promote sound policymaking, efficient markets, and public understanding.

Program Overview

As an independent statistical/analytical agency, EIA has two primary roles. The first is to conduct functions required by statute, such as the development and maintenance of a comprehensive energy database, the dissemination of reports and analysis for a wide variety of customers, and specific reports required by law. Second, EIA satisfies inquiries for energy information from policymakers, the energy industry, and the general public. To fulfill these roles, EIA collects, analyzes, and disseminates information on energy reserves, production, consumption, distribution, prices, technology, and related international, economic, and financial markets.

Budget Overview

The FY 2001 budget request is $75.0 million for ongoing EIA data and analysis activities related to energy issues and provides for essential data quality enhancements. EIA's base program encompasses the maintenance of a comprehensive energy database; the dissemination of energy data and analyses to a wide variety of customers in the public and private sectors; the maintenance of the **National Energy Modeling System** for mid-term energy markets analysis and forecasting; the maintenance of the Short-Term Integrated Forecasting System for near-term energy market analysis and forecasting; customer forums and surveys to maintain an up-to-date product and service mix; and the maintenance of systems supporting the electronic dissemination of energy data through the EIA Internet home page and CD-ROM.

In FY 2001, EIA will focus on the following:

- Continuation of a multi-year project to overhaul EIA's energy consumption surveys. EIA's energy consumption surveys have operated for 20 years on the same statistical frame designs (e.g., the complete population for sampling), far beyond the usual ten year life-cycle tied to the census. In FY 2001, EIA will continue to update the survey frames, sampling design, and data systems. This redesign will realign the consumption surveys' coverage with the distribution of residential and commercial buildings populations identified with the 2000 census. This effort is expected to continue through FY 2004 ($0.6).
- A multi-year project to overhaul EIA's electricity surveys and data systems to reflect changes in the nation's restructured electricity generation and distribution systems. All EIA areas associated with data collection, analysis, and reporting will be significantly revised and overhauled to reflect the evolving competitive electricity industry. This effort will be continued through FY 2002 ($1.0).
- Continuation of the multi-year project to overhaul EIA's natural gas surveys and data systems to reflect changes in the restructured natural gas industry. This

project has three phases: 1) collecting detailed information on the evolving structure and operation of the natural gas industry to identify critical data needs and sources; 2) developing and field testing natural gas surveys and data systems; and 3) implementing the overhauled natural gas surveys and data systems. This project will continue through FY 2002 ($0.8).

- Enhance EIA's international energy analysis and projections capabilities to address increasing demands for assessing the impact of carbon mitigation strategies. In FY 2001, EIA will develop a preliminary version of the model System for Analysis of Global Energy Markets, and modify that model to meet the project requirements as defined in EIA's Report: "*Design and Development Plan for the System for Analysis of Global Energy Markets*." Also in FY 2001, EIA will use this preliminary model to produce the forecasts for the International Energy Outlook 2001. The model methodologies will be enhanced over the next two fiscal years to address the critical areas of regulation, technological improvement, and international carbon permit trading. By FY 2004, the project's goal is to incorporate EIA's U.S. energy modeling system and have a fully developed and documented international model ($1.0).
- Correcting critical petroleum, natural gas, and alternative fuel data quality issues. In FY 2001, EIA will increase efforts to identify the causes of the data quality deterioration and implement processes to improve and maintain high data quality ($0.9).

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Energy Information Administration					
National energy information system	70,500	72,368	75,000	2,632	3.6%
Use of prior year balances	-315	——	——	——	——
Total, Energy Information Administration	70,185	72,368	75,000	2,632	3.6%

FY 2001 Budget Request

At the FY 2001 request level, EIA will produce and disseminate energy data, analyses, and forecasts covering the full range of fuels and a wide variety of energy issues. EIA will respond to about three million inquiries and requests for energy information. EIA will maintain the present high level of service by continuing our customers' feedback analysis program and improving our products and services. EIA will continue to expand the customer base and the avenues to disseminate energy information including enhancements to EIA's Web site (http://www.eia.doe.gov).

Oil and Gas - ***(FY 2000 $18.2; FY 2001 $19.3)***

EIA will continue to collect and disseminate weekly, monthly, and annual statistics on the supply of crude oil and refined petroleum products, and data on crude oil and petroleum sales and prices. The program will produce an annual data series on reserves and production of crude oil and natural gas. EIA will continue to overhaul the natural gas surveys and data collection systems to reflect changes in the restructured natural gas

industry. In FY 2001, EIA will start several energy data quality enhancement projects and increase frames maintenance impacted by the deregulation of the natural gas industry.

Coal, Nuclear, Electric and Alternative Fuels - ***(FY 2000 $10.8; FY 2001 $10.6)***

EIA will collect and disseminate coal, electric, nuclear, and renewable energy information, statistics and short-term forecasts. EIA will continue to overhaul electricity data surveys and data collection systems to reflect changes in the electricity industry.

Energy Markets and End Use - ***(FY 2000 $9.8; FY 2001 $10.4)***

This budget supports analysis of current energy markets; surveys of energy consumers in the residential, commercial, and manufacturing sectors; integrated energy supply and demand statistics; financial analysis of the energy industry; short-term energy forecasts; emergency preparedness; and the preparation and dissemination of monthly and annual integrated energy statistical information. EIA will initiate the comprehensive energy consumption survey redesign using the FY 2000 census population data. Also, funding will address increased costs in consumption survey operation and data quality maintenance.

Integrated Analysis and Forecasting - ***(FY 2000 $9.2; FY 2001 $9.1)***

This program will maintain the **National Energy Modeling System** used for mid-term energy supply and demand projections, and policy analysis. EIA will continue to collect data and conduct analyses of greenhouse gas emissions. Modeling enhancements to address requests for international energy analysis and projections of the impacts from the integration of carbon mitigation strategies will also be continued with this funding.

Information Technology - ***(FY 2000 $9.0; FY 2001 $9.6)***

These funds will be used for computer services to support EIA-wide activities. Increased funding will continue development and implementation of EIA's Common Collection & Processing System; integrate data querying and extraction tools; and begin development of on-line data analysis tools for use by EIA energy data users.

National Energy Information Center - ***(FY 2000 $2.2; FY 2001 $2.3)***

The National Energy Information Center will respond to public inquiries, provide dissemination preparation support, and continue dissemination activities for EIA products.

Statistics and Methods - ***(FY 2000 $2.4; FY 2001 $2.4)***

This program will enhance and maintain the statistical integrity of EIA's energy data and evaluate the quality and meaningfulness of EIA's information.

Resource Management - ***(FY 2000 $10.8; FY 2001 $11.3)***

Provide overall management and administrative support, logistic support services, and the Working Capital Fund costs.

Highlights of Program Changes ($ in millions)

Energy Information Administration ***(FY 2000 $72.4; FY 2001 $75.0)*** **+$2.6**

Increase due to: 1) upgrades in energy information surveys and data systems to address increased requests for international analysis and to reflect the changing energy industry; 2) increased personnel costs associated with pay raise; 3) increased costs in conducting and maintaining energy surveys; and 4) upgrades in the information technology infrastructure and systems to improve energy information collection, processing, and dissemination.

Clean Coal Technology

Mission

The **Clean Coal Technology Program** is a development effort jointly funded by the U.S. government and industry to demonstrate the most promising advanced coal-based technologies to use coal cleanly, efficiently (reducing CO_2 emissions), and meet our domestic energy needs inexpensively. The program also generates the data needed for the marketplace to judge their commercial potential, with the most promising technologies moved into the domestic and international marketplaces by private industry. Underlying this objective is recognition that the vast and relatively inexpensive U.S. coal reserves are a critical energy resource which can provide a significant economic advantage to the nation. However, these benefits will only be realized when coal can be used in ways which are environmentally responsible and when advanced technology can achieve significantly higher efficiencies than existing commercial power plants.

Program Overview

Begun in 1985 to accelerate the pace at which advanced coal-based utilization technologies would enter commercial service, the program is of limited duration entailing five rounds of competition. Industry, by law, must fund at least 50 percent of each project. Today, the five rounds have been awarded and the average industry cost share is 66 percent of the program's $5.4 billion in funding. The majority of the projects from the early rounds have been completed and several are being used by industry to meet **Clean Air Act** requirements. The more complex power generating systems are now moving into construction and operation and they will be ready for re-powering or greenfield applications by 2010. The technologies being demonstrated in the program are grouped into four primary market applications: Advanced Electric Power Generation Systems, which offer the prospect of much higher efficiency coal-based power plants to meet the energy demands of the nation well into the next century; Environmental Control Devices, which offer more attractive ways to reduce emissions from existing powerplants and industrial facilities both domestically and internationally; Coal Processing for Clean Fuels, which offers coal feedstock conversion to produce a stable fuel of high-energy density that can be used to produce steam electricity, or that can be used as a transportation fuel; and Industrial Applications, which offer superior ways to competitively manufacture key commodities such as steel in an environmentally responsible manner.

Budget Overview

The Clean Coal Technology program operates in FY 2001 with previously appropriated funding. The Administration's policy is to limit the program to projects currently under contract.

Clean Coal Technology

	FY 1999 Comparable Appropriation	FY 2000 Comparable Appropriation	FY 2001 Request	FY 2001 vs. FY 2000	
Clean Coal Technology					
Advance appropriation	——	10,000	171,000	161,000	1,610.0%
Appropriation	-40,163	-156,038	-326,000	-169,962	-108.9%
Total, Clean Coal Technology	-40,163	-146,038	-155,000	-8,962	-6.1%

FY 2001 Budget Request

The FY 2001 budget proposes that $221.0 million be deferred until FY 2002 and that an additional $105.0 million be rescinded. The proposed deferral reflects schedule delays primarily resulting from project restructuring activities. The proposed rescission reflects savings from restructured projects. The 40 active projects have a total cost of $5.4 billion of which DOE has committed $1.8 billion. At the close of FY 2001, 32 projects are expected to be completed; one additional project is expected to complete operation and begin preparing final reports; two projects are expected to be in operation; three projects in construction; and two projects in design. At the end of FY 2001, two projects are expected to have outstanding obligation commitments. In FY 2001, the Clean Coal Program will complete the operating phase of the Liquid Phase Methanol project demonstrating the production of clean-burning methanol from coal-derived synthesis gas, and approach the completion of the Tampa Electric IGCC project that is establishing the engineering foundation leading to a new generation of 60 percent efficient powerplants.

Highlights of Program Changes ($ in millions)

Clean Coal *(FY 2000 -$146.0; FY 2001 -$155.0)* **-$9.0**

The change reflects the net amount proposed for deferral and rescission, FY 2001 $-155.0 million versus the enacted FY 2000 net deferral of $-146.0 million. The proposed deferral for FY 2001 reflects schedule delays primarily resulting from project restructuring activities and has no programmatic effect.

Appendix Charts

A note on dollar amounts in this document. Dollar amounts for FY 1999 and FY 2000 are shown as comparable to the FY 2001 request. The appendix to this document contains a table which reflects dollar amounts both with current appropriations and comparable appropriations. Current and comparable appropriations are defined as follows:

- The current appropriation columns reflect the original appropriation with adjustments for subsequent legal changes to these amounts, such as distribution of general reductions, congressionally approved reprogrammings and rescissions. In addition, where we are proposing changes in FY 2000 in our supplemental budget request, these changes are reflected in the affected lines, but are backed out at the bottom of the appropriation account, so that the net amount reflects only actual appropriations.
- The comparable appropriation columns reflect the current appropriation plus any adjustments for subsequent structure changes, so that FY 1999 and FY 2000 funding is shown in the lines in which it is requested in FY 2001.

U.S. Department of Energy
FY 2001 Budget Request to Congress

(dollars in thousands)

	FY 1999 Current Approp.	FY 1999 Comparable Approp.	FY 2000 Current Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress
Energy and Water Development Appropriations					
Energy supply	786,164	656,382	643,783	642,828	764,895
Non-defense environmental management	430,649	405,420	332,350	307,229	286,001
Uranium enrichment D&D fund	220,153	220,153	249,247	249,247	303,038
Science	2,720,269	2,841,234	2,787,627	2,814,551	3,151,065
Departmental administration	136,100	141,402	98,694	80,025	84,577
Office of the inspector general	28,922	28,922	29,500	29,500	33,000
Interim storage activities	——	——	——	——	-85,000
National nuclear security administration:					
Weapons activities	4,396,149	4,285,796	4,427,052	4,321,242	4,594,000
Other nuclear security activities	——	1,645,025	——	1,375,035	1,583,635
Total, National nuclear security administration	4,396,149	5,930,821	4,427,052	5,696,277	6,177,635
Environmental and other defense activities:					
Defense environmental restoration & waste management	4,315,961	4,322,403	4,467,308	4,465,505	4,551,527
Defense facilities closure projects	1,041,740	1,041,740	1,060,447	1,060,447	1,082,297
Environmental management privatization	228,357	228,357	188,282	188,282	515,000
Energy employees compensation initiative	——	——	——	——	17,000
Other defense activities	2,271,993	763,623	1,715,899	466,298	555,122
Defense nuclear waste disposal	189,000	189,000	111,574	111,574	112,000
Total, Environmental and other defense activities	8,047,051	6,545,123	7,543,510	6,292,106	6,832,946
Power marketing administrations	237,054	237,054	230,381	230,381	199,586
Federal energy regulatory commission	——	——	——	——	——
Nuclear waste disposal	168,465	164,465	235,601	235,601	325,500
Geothermal resources development fund	——	——	-821	-821	——
Total, Energy and Water Development Appropriations	17,170,976	17,170,976	16,576,924	16,576,924	18,073,243
Interior and Related Agencies Appropriations					
Fossil energy research and development	376,509	376,509	417,433	403,933	375,570
Alternative fuels production	-838	-838	——	——	-1,000
Naval petroleum and oil shale reserves	13,953	13,953	——	——	——
Elk Hills school lands fund	36,000	36,000	——	——	36,000
Energy conservation	618,995	618,995	745,242	758,742	850,500
Economic regulation	1,785	1,785	1,992	1,992	2,000
Strategic petroleum reserve	159,925	159,925	158,396	158,396	151,000
Energy information administration	70,185	70,185	72,368	72,368	75,000
Clean coal technology	-40,163	-40,163	-146,038	-146,038	-155,000
Total, Interior and Related Agencies Appropriations	1,236,351	1,236,351	1,249,393	1,249,393	1,334,070
Uranium enrichment D&D fund discretionary payments	-398,088	-398,088	-420,000	-420,000	-420,000
Excess fees and recoveries, FERC	-25,167	-25,167	-21,309	-21,309	-28,342
Colorado river basin	-16,098	-16,098	-21,000	-21,000	-21,000
Total, Department of Energy	17,967,974	17,967,974	17,364,008	17,364,008	18,937,971

The Current Appropriation columns reflect the original appropriation with adjustments for subsequent legal changes to these amounts, such as distribution of general reductions, congressionally approved reprogrammings, and rescissions. In addition, where we are proposing changes in FY 2000 in our supplemental budget request, these changes are reflected in the affected lines, but are backed out at the bottom of the appropriation account, so that the net amount reflects only actual appropriations.

The Comparable Appropriation columns reflect the current appropriation plus any adjustments for subsequent structure changes, so that FY 1999 and FY 2000 amounts are shown in the lines in which they are requested in FY 2001.

U.S. Department of Energy
FY 2001 Budget Request to Congress

(dollars in thousands)

	FY 1999 Current Approp.	FY 1999 Comparable Approp.	FY 2000 Current Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress
Energy Supply					
Solar and renewable resources technologies	380,224	380,224	357,216	357,216	456,600
Nuclear energy	284,563	271,525	285,243	285,243	308,445
Environment, safety and health	50,323	47,757	38,998	38,043	40,000
Technical information management	8,836	8,836	8,600	8,600	9,302
Field operations	103,964	——	——	——	——
Transfer to OSHA for external regulation	1,000	1,000	996	996	——
Oak Ridge landlord	10,984	——	——	——	——
Small business innovation research (SBIR)	4,874	4,874	——	——	——
Subtotal, Energy Supply	844,768	714,216	691,053	690,098	814,347
Use of prior year balances and other adjustments	-58,604	-57,834	-47,270	-47,270	-49,452
Total, Energy Supply	786,164	656,382	643,783	642,828	764,895
Solar and Renewable Resources Technologies					
Solar energy					
Solar building technology research	3,556	3,556	1,968	1,968	4,500
Photovoltaic energy systems	70,561	70,561	65,912	65,912	82,000
Concentrating solar power	16,791	16,791	15,168	15,168	15,000
Biomass/biofuels energy systems	72,052	72,052	70,727	70,727	102,441
Wind energy systems	34,076	34,076	32,481	32,481	50,500
Renewable energy production incentive program	4,000	4,000	1,500	1,500	4,000
Solar program support	——	——	4,936	4,936	6,500
International solar energy program	6,272	6,272	3,819	3,819	11,500
National renewable energy laboratory	3,900	3,900	1,100	1,100	1,900
Total, Solar energy	211,208	211,208	197,611	197,611	278,341
Geothermal	28,150	28,150	23,621	23,621	27,000
Hydrogen research	21,976	21,976	24,587	24,587	23,000
Hydropower	3,210	3,210	4,921	4,921	5,000
Renewable Indian energy resources	4,779	4,779	3,864	3,864	5,000
Electric energy systems and storage	40,896	40,896	37,792	37,792	48,000
Federal building/remote power initiative	4,000	4,000	——	——	——
Program direction	18,100	18,100	17,720	17,720	18,159
Departmental energy management	——	——	——	——	5,000
Renewable energy research program	47,905	47,905	47,100	47,100	47,100
Subtotal, Solar & Renewable Resources Technologies	380,224	380,224	357,216	357,216	456,600
Use of prior year balances and other adjustments	-48,906	-48,906	-47,100	-47,100	-47,100
Total, Solar & Renewable Resources Technologies	331,318	331,318	310,116	310,116	409,500

U.S. Department of Energy
FY 2001 Budget Request to Congress

(dollars in thousands)

	FY 1999 Current Approp.	FY 1999 Comparable Approp.	FY 2000 Current Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress
Nuclear Energy					
Nuclear energy research and development					
Advanced radioisotope power system	36,841	36,841	34,141	34,141	31,200
Test reactor area landlord	6,766	6,766	8,903	8,903	9,000
University reactor fuel assistance and support	11,000	11,000	12,000	12,000	12,000
Nuclear energy plant optimization	——	——	4,976	4,976	5,000
Nuclear energy research initiative	18,496	18,496	22,392	22,392	35,000
Civilian research and development	——	4,000	8,956	8,956	——
Total, Nuclear energy research and development	73,103	77,103	91,368	91,368	92,200
Fast flux test facility (FFTF)	30,000	30,000	28,000	28,000	44,010
Termination costs	84,470	84,470	78,775	78,775	74,000
Uranium programs	50,790	37,210	41,945	41,945	53,400
Isotope support	21,500	21,500	20,455	20,455	17,215
Program direction	24,700	21,242	24,700	24,700	27,620
Subtotal, Nuclear Energy	284,563	271,525	285,243	285,243	308,445
Use of prior year balances and other adjustments	-5,475	-5,475	-170	-170	-2,352
Total, Nuclear Energy	279,088	266,050	285,073	285,073	306,093
Environment, Safety and Health					
Office of environment, safety & health (non-defense)	32,000	30,014	20,000	19,650	20,002
Program direction	18,323	17,743	18,998	18,393	19,998
Subtotal, Environment, Safety and Health	50,323	47,757	38,998	38,043	40,000
Use of prior year balances and other adjustments	-2,970	-2,970	——	——	——
Total, Environment, Safety and Health	47,353	44,787	38,998	38,043	40,000
Technical Information Management					
Technical information management program	1,586	1,586	1,600	1,600	1,802
Program direction	7,250	7,250	7,000	7,000	7,500
Subtotal, Technical Information Management	8,836	8,836	8,600	8,600	9,302
Use of prior year balances and other adjustments	-250	-250	——	——	——
Total, Technical Information Management	8,586	8,586	8,600	8,600	9,302
Field operations					
Field operations	103,964	——	——	——	——
Use of prior year balances and other adjustments	-234	-58	——	——	——
Total, Field operations	103,730	-58	——	——	——

U.S. Department of Energy
FY 2001 Budget Request to Congress

(dollars in thousands)

	FY 1999 Current Approp.	FY 1999 Comparable Approp.	FY 2000 Current Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress
Science					
High energy physics	680,716	682,746	697,743	703,843	714,730
Nuclear physics	327,168	338,496	347,714	355,802	369,890
Biological and environmental research	425,890	425,890	432,886	434,086	445,260
Basic energy sciences	783,185	791,713	771,561	779,421	1,015,770
Advanced scientific computing research	153,512	153,512	127,883	127,883	181,970
Energy research analyses	976	976	991	991	1,000
Multiprogram energy labs — facility support	21,260	32,244	33,055	33,055	33,930
Fusion energy sciences program	217,248	220,591	244,686	247,759	247,270
Program direction	49,453	134,975	131,108	131,711	141,245
Small business innovation research (SBIR)	81,461	81,461	——	——	——
Subtotal, Science	2,740,869	2,862,604	2,787,627	2,814,551	3,151,065
Use of prior year balances and other adjustments	-20,600	-21,370	——	——	——
Total, Science	2,720,269	2,841,234	2,787,627	2,814,551	3,151,065
Departmental Administration					
Office of the secretary	5,000	5,000	5,308	5,308	5,731
Management and administration	115,450	83,125	110,450	81,819	90,699
Chief financial officer	23,120	24,117	26,000	26,997	30,748
Field integration	7,500	7,500	1,000	1,000	——
Board of contract appeals	715	715	838	838	878
Congressional and intergovernmental affairs	4,900	4,900	4,910	4,910	5,146
Public affairs	3,500	3,500	3,700	3,700	4,150
General counsel	19,410	19,410	20,750	20,750	22,724
Policy	16,350	7,609	15,350	6,854	8,088
International affairs	——	7,744	——	7,499	10,022
Economic impact and diversity	6,400	6,400	6,400	6,400	6,626
Contract reform and privatization	2,833	2,833	3,000	3,000	2,500
Total, Administrative operations	205,178	172,853	197,706	169,075	187,312
Cost of work for others	44,312	44,312	33,205	33,205	34,027
Subtotal, Departmental Administration (gross)	249,490	217,165	230,911	202,280	221,339
Use of prior year balances & other adjustments	-39,222	-1,595	-25,330	-15,368	-8,000
Total, Departmental Administration (gross)	210,268	215,570	205,581	186,912	213,339
Miscellaneous revenues	-74,168	-74,168	-106,887	-106,887	-128,762
Total, Departmental Administration (net)	136,100	141,402	98,694	80,025	84,577
Office of Inspector General					
Office of inspector general	28,922	28,922	29,500	29,500	33,000
Interim storage activities	——	——	——	——	-85,000

U.S. Department of Energy
FY 2001 Budget Request to Congress

(dollars in thousands)

	FY 1999 Current Approp.	FY 1999 Comparable Approp.	FY 2000 Current Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress
Weapons Activities					
Stewardship Operation and Maintenance					
Directed stockpile work	——	721,558	——	759,977	836,603
Campaigns	——	999,573	——	928,598	1,049,907
Readiness in technical base and facilities	——	1,784,228	——	1,869,988	1,953,573
Total, Stewardship Operation and Maintenance	——	3,505,359	——	3,558,563	3,840,083
Secure transportation asset	——	91,391	——	91,463	115,673
Program direction	250,000	221,056	205,820	203,628	224,071
Construction	——	518,984	——	530,256	414,173
Stockpile stewardship	2,113,082	——	2,200,646	——	——
Stockpile management	2,084,061	——	1,991,791	——	——
Transportation safeguards division	——	——	91,463	——	——
Subtotal, Weapons Activities	4,447,143	4,336,790	4,489,720	4,383,910	4,594,000
Use of prior year balances & other adjustments	-50,994	-50,994	-62,668	-62,668	——
Total, Weapons Activities	4,396,149	4,285,796	4,427,052	4,321,242	4,594,000
Other Nuclear Security Activities					
Nonproliferation and national security activities	——	585,171	——	547,237	682,600
Fissile materials control and disposition	——	200,710	——	201,673	223,435
Russian plutonium disposition	——	200,000	——	——	——
Naval reactors	——	670,189	——	675,125	677,600
Subtotal, Other Nuclear Security Activities	——	1,656,070	——	1,424,035	1,583,635
Use of prior year balances and other adjustments	——	-11,045	——	-49,000	——
Total, Other Nuclear Security Activities	——	1,645,025	——	1,375,035	1,583,635

*Amounts for **Other Nuclear Security Activities** were appropriated in the **Other Defense Activities** account in FY 1999 and FY 2000.*

Nonproliferation and National Security					
Nonproliferation and verification R&D	——	204,799	——	225,044	232,990
Arms control	——	258,743	——	263,448	272,870
Long-term nonproliferation program for Russia	——	——	——	——	100,000
HEU transparency implementation	——	13,580	——	15,690	15,190
Internation nuclear safety	——	79,989	——	15,000	20,000
Program direction	——	28,060	——	28,055	41,550
Subtotal, Nonproliferation and National Security	——	585,171	——	547,237	682,600
Use of prior year balances and other adjustments	——	-5,527	——	——	——
Total, Nonproliferation and National Security	——	579,644	——	547,237	682,600

*Amounts for **Nuclear Nonproliferation and National Security** were appropriated in the **Other Defense Activities** account in FY 1999 and FY 2000.*

U.S. Department of Energy
FY 2001 Budget Request to Congress

(dollars in thousands)

	FY 1999 Current Approp.	FY 1999 Comparable Approp.	FY 2000 Current Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress
Fissile Materials Control and Disposition					
Fissile materials control and disposition	——	196,122	——	194,330	213,517
Program direction	——	4,588	——	7,343	9,918
Subtotal, Fissile Materials Control and Disposition	——	200,710	——	201,673	223,435
Use of prior year balances and other adjustments	——	-1,469	——	——	——
Total, Fissile Materials Control and Disposition	——	199,241	——	201,673	223,435

*Amounts for **Fissile Materials Control and Disposition** were appropriated in the **Other Defense Activities** account in FY 1999 and FY 2000.*

Russian Plutonium Disposition					
Russian plutonium disposition	——	200,000	——	——	——
Use of prior year balances and other adjustments	——	——	——	-49,000	——
Total, Russian Plutonium Disposition	——	200,000	——	-49,000	——

*Amounts for **Russian Plutonium Disposition** were appropriated in the **Other Defense Activities** account in FY 1999 and FY 2000.*

Naval Reactors					
Naval reactors development	——	650,089	——	654,525	656,200
Program direction	——	20,100	——	20,600	21,400
Subtotal, Naval reactors	——	670,189	——	675,125	677,600
Use of prior year balances and other adjustments	——	-4,049	——	——	——
Total, Naval Reactors	——	666,140	——	675,125	677,600

*Amounts for **Naval Reactors** were appropriated in the **Other Defense Activities** account in FY 1999 and FY 2000.*

Other Defense Activities					
Nonproliferation and national security	776,545	——	728,125	——	——
Intelligence	——	36,059	34,927	34,927	38,059
Counterintelligence	6,900	22,541	37,421	37,421	45,200
Security and emergency operations	——	267,443	——	292,151	340,376
Independent oversight and performance assurance	——	9,633	4,901	13,038	14,937
Environment, safety and health	93,100	97,358	107,642	99,760	109,050
Worker and community transition	29,900	29,900	24,012	24,012	24,500
Fissile materials control and disposition	168,710	——	169,795	——	——
Russian plutonium disposition	200,000	——	——	——	——
Russian uranium disposition	325,000	325,000	——	——	——
National security programs administration support	37,627	——	9,962	——	——
Office of hearings and appeals	2,400	2,400	2,989	2,989	3,000
Naval reactors	670,189	——	675,125	——	——
Subtotal, Other Defense Activities	2,310,371	790,334	1,794,899	504,298	575,122
Use of prior year balances and other adjustments	-38,378	-26,711	-79,000	-38,000	-20,000
Total, Other Defense Activities	2,271,993	763,623	1,715,899	466,298	555,122

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(dollars in thousands)

	FY 1999 Current Approp.	FY 1999 Comparable Approp.	FY 2000 Current Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress
Nonproliferation and National Security					
Nonproliferation and verification R&D	204,799	——	225,044	——	——
Arms control	256,243	——	260,948	——	——
Intelligence	35,460	——	——	——	——
Emergency management	21,000	——	20,925	——	——
Nuclear safeguards and security	55,200	——	68,854	——	——
Security investigations	30,000	——	32,664	——	——
HEU transparency implementation	——	——	15,690	——	——
International nuclear safety	79,989	——	15,000	——	——
Program direction	93,854	——	89,000	——	——
Subtotal, Nonproliferation and National Security	776,545	——	728,125	——	——
Use of prior year balances and other adjustments	-26,149	——	-30,000	——	——
Total, Nonproliferation and National Security	750,396	——	698,125	——	——

*Amounts for **Nonproliferation and National Security** are requested in the **Other Nuclear Security Activities** account in FY 2001.*

Security and Emergency Operations					
National safeguards & security	——	66,063	——	90,025	124,409
Security investigations	——	30,000	——	32,664	33,000
Emergency management	——	92,200	——	87,665	93,600
Program direction	——	79,180	——	81,797	89,367
Subtotal, Security and Emergency Operations	——	267,443	——	292,151	340,376
Use of prior year balances and other adjustments	——	-21,821	——	-28,000	-20,000
Total, Security and Emergency Operations	——	245,622	——	264,151	320,376
Independent Oversight and Performance Assurance					
Independent oversight and performance assurance	——	6,000	2,901	7,301	——
Program direction	——	3,633	2,000	5,737	41,937
Total, Independent Oversight and Performance Assurance	——	9,633	4,901	13,038	41,937
Environment, Safety & Health					
Office of environmental, safety and health (defense)	68,331	75,967	82,873	78,473	86,446
Program direction	24,769	21,391	24,769	21,287	22,604
Subtotal, Environment, Safety & Health	93,100	97,358	107,642	99,760	109,050
Use of prior year balances and other adjustments	-2,108	-2,108	-10,000	-10,000	——
Total, Environment, Safety & Health	90,992	95,250	97,642	89,760	109,050
Worker and Community Transition					
Worker and community transition	26,000	26,000	20,525	20,525	21,500
Program direction	3,900	3,900	3,487	3,487	3,000
Subtotal, Worker and Community Transition	29,900	29,900	24,012	24,012	24,500
Use of prior year balances and other adjustments	-1,698	-1,698	——	——	——
Total, Worker and Community Transition	28,202	28,202	24,012	24,012	24,500

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	FY 1999 Current Approp.	FY 1999 Comparable Approp.	FY 2000 Current Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress
Fissile Materials Control and Disposition					
Fissile materials disposition	164,122	——	165,259	——	——
Program direction	4,588	——	7,343	——	——
Subtotal, Fissile Materials Control and Disposition	168,710	——	172,602	——	——
Use of prior year balances and other adjustments	-1,469	——	-2,807	——	——
Total, Fissile Materials Control and Disposition	167,241	——	169,795	——	——

*Amounts for **Fissile Materials Control and Disposition** are requested in the **Other Nuclear Security Activities** account in FY 2001.*

Russian Plutonium Disposition					
Russian plutonium disposition	200,000	——	——	——	——
Use of prior year balances and other adjustments	——	——	-49,000	——	——
Total, Russian Plutonium Disposition	200,000	——	-49,000	——	——

*Amounts for **Russian Plutonium Disposition** are requested in the **Other Nuclear Security Activities** account in FY 2001.*

Naval Reactors					
Naval reactors development	650,089	——	654,525	——	——
Program direction	20,100	——	20,600	——	——
Subtotal, Naval reactors	670,189	——	675,125	——	——
Use of prior year balances and other adjustments	-4,049	——	——	——	——
Total, Naval Reactors	666,140	——	675,125	——	——

*Amounts for **Naval Reactors** are requested in the **Other Nuclear Security Activities** account in FY 2001.*

Energy employees compensation initiative					
Energy employee beryllium compensation fund	——	——	——	——	12,800
Energy employee pilot project	——	——	——	——	2,000
Paducah employees exposure compensation fund	——	——	——	——	2,200
Total, Energy employees compensation initiative	——	——	——	——	17,000

Environmental Management					
Defense facilities closure projects	1,041,740	1,041,740	1,060,447	1,060,447	1,082,297
Defense environmental restoration & waste management	4,333,408	4,351,850	4,466,785	4,464,982	4,635,844
Defense environment management privatization	228,357	260,357	232,282	232,282	540,092
Non-defense environmental management	440,214	414,985	332,350	307,229	286,001
Uranium enrichment decontamination and decommissioning fund	220,153	220,153	249,247	249,247	303,038
Uranium enrichment D&D fund discretionary payments	-398,088	-398,088	-420,000	-420,000	-420,000
Subtotal, Environmental Management	5,865,784	5,890,997	5,921,111	5,894,187	6,427,272
Use of prior year balances and other adjustments	-39,012	-71,012	-43,477	-43,477	-109,409
Total, Environmental Management	5,826,772	5,819,985	5,877,634	5,850,710	6,317,863

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	FY 1999 Current Approp.	FY 1999 Comparable Approp.	FY 2000 Current Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress
Defense Environmental Restoration & Waste Management					
Site/project completion	1,043,102	1,043,102	958,469	958,469	970,951
Post 2006 completion	2,716,518	2,716,518	2,939,494	2,938,294	3,108,457
Science and technology	236,715	236,715	229,413	229,413	196,548
Program direction	337,073	355,515	339,409	338,806	359,888
Subtotal, Defense Env. Restoration & Waste Mgmt.	4,333,408	4,351,850	4,466,785	4,464,982	4,635,844
Use of prior year balances and other adjustments	-29,447	-29,447	523	523	-84,317
Total, Defense Env. Restoration & Waste Mgmt.	4,303,961	4,322,403	4,467,308	4,465,505	4,551,527
Defense Environmental Management Privatization					
Privatization initiatives, various locations	228,357	260,357	232,282	232,282	540,092
Use of prior year balances and other adjustments	——	-32,000	-44,000	-44,000	-25,092
Total, Defense Environmental Management Privatization	228,357	228,357	188,282	188,282	515,000
Non-Defense Environmental Management					
Site closure	248,264	248,264	216,115	216,115	81,636
Site/project completion	101,174	75,945	97,385	72,264	64,721
Post 2006 completion	90,776	90,776	18,850	18,850	139,644
Subtotal, Non-Defense Environmental Management	440,214	414,985	332,350	307,229	286,001
Use of prior year balances & other adjustments	-9,565	-9,565	——	——	——
Total, Non-Defense Environmental Management	430,649	405,420	332,350	307,229	286,001
Uranium Enrichment Decontamination and Decommissioning Fund					
Decontamination and decommissioning	190,153	190,153	235,247	235,247	273,038
Uranuim/thorium reimbursement	30,000	30,000	30,000	30,000	30,000
Subtotal Uranium Enrichment D&D Fund	220,153	220,153	265,247	265,247	303,038
Use of prior year balances and other adjustments	——	——	-16,000	-16,000	——
Total, Uranium Enrichment D&D Fund	220,153	220,153	249,247	249,247	303,038
Nuclear Waste Fund — Financial					
Nuclear waste disposal	168,465	164,465	235,601	235,601	325,500
Defense nuclear waste disposal	189,000	189,000	111,574	111,574	112,000
Total, Nuclear Waste Fund — Financial	357,465	353,465	347,175	347,175	437,500
Nuclear Waste Fund — Activities					
Yucca mountain site characterization	281,879	281,879	281,175	281,175	358,306
Waste acceptance, storage and transportation	1,850	1,850	1,795	1,795	3,800
Accelerator transmutation of waste	4,000	——	——	——	——
Program integration	11,250	11,250	8,621	8,621	11,766
Program direction	58,486	58,486	59,584	59,584	63,628
Subtotal, Nuclear Waste Fund — Activities	357,465	353,465	351,175	351,175	437,500
Less rescission	——	——	-4,000	-4,000	——
Total, Nuclear Waste Fund — Activities	357,465	353,465	347,175	347,175	437,500

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	FY 1999 Current Approp.	FY 1999 Comparable Approp.	FY 2000 Current Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress
Power Marketing Administrations					
Southeastern power administration	10,500	10,500	11,579	11,579	5,000
Southwestern power administration	25,953	25,953	28,664	28,664	29,000
Western area power administration	223,183	223,183	212,602	212,602	170,899
Falcon & Amistad operating & maintenance fund	994	994	1,309	1,309	2,670
Subtotal, Power Marketing Administrations	260,630	260,630	254,154	254,154	207,569
Use of prior year balances and other adjustments	-23,576	-23,576	-23,773	-23,773	-7,983
Total, Power Marketing Administrations	237,054	237,054	230,381	230,381	199,586
Colorado River Basin Power Marketing Fund					
Spending authority from offsetting collections	100,661	100,661	113,591	113,591	114,709
Offsetting collections	-116,759	-116,759	-134,591	-134,591	-135,709
Total, Colorado River Basin	-16,098	-16,098	-21,000	-21,000	-21,000
Federal Energy Regulatory Commission					
Federal energy regulatory commission	167,500	167,500	174,950	174,950	175,200
FERC revenues	-167,500	-167,500	-174,950	-174,950	-175,200
Total, Federal Energy Regulatory Commission	———	———	———	———	———
FERC Fees & recoveries in excess of annual appropriation	-25,167	-25,167	-21,309	-21,309	-28,342
Geothermal resources development fund	———	———	-821	-821	———

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	FY 1999 Current Approp.	FY 1999 Comparable Approp.	FY 2000 Current Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress
Fossil Energy Research and Development					
Coal and power systems					
Central systems	——	121,812	——	115,257	89,364
Distributed generation systems	——	43,069	——	44,499	42,200
Sequestration R&D	——	5,825	——	9,217	19,500
Fuels	——	16,710	——	20,275	15,700
Advanced research	——	19,630	——	23,195	27,021
Advanced clean fuels research	16,710	——	20,275	——	——
Advanced clean/efficient power systems	84,239	——	80,287	——	——
Advanced research and technology development	19,630	——	23,195	——	——
Total, Coal and power systems	120,579	207,046	123,757	212,443	193,785
Gas	112,415	25,948	120,284	31,597	38,750
Petroleum	47,344	47,344	57,251	57,252	52,569
Black liquor gasification	——	——	13,500	——	——
Cooperative research and development	6,657	6,657	7,389	7,389	5,836
Fossil energy environmental restoration	11,000	11,000	10,000	10,000	9,041
Import / export authorization	2,173	2,173	2,173	2,173	2,300
Program direction and management support	69,481	69,481	75,479	75,479	75,064
Plant and capital equipment	2,600	2,600	2,600	2,600	2,000
Advanced metallurgical processes	5,000	5,000	5,000	5,000	5,225
Subtotal, Fossil Energy Research and Development	377,249	377,249	417,433	403,933	384,570
Use of prior year balances and other adjustments	-740	-740	——	——	-9,000
Total, Fossil Research and Development	376,509	376,509	417,433	403,933	375,570
Alternative Fuels Production					
Interest from the great plains project trust	-838	-838	——	——	——
Rescission of unobligated balances	——	——	——	——	-1,000
Total, Alternative Fuels Production	-838	-838	——	——	-1,000
Naval Petroleum & Oil Shale Reserves					
Naval petroleum & oil shale reserves	20,650	20,650	21,240	21,240	20,775
Use of prior year balances and other adjustments	-6,697	-6,697	-21,240	-21,240	-20,775
Total, Naval Petroleum & Oil Shale Reserves	13,953	13,953	——	——	——
Elk Hills school lands fund					
California teachers' pension fund payment	36,000	36,000	——	——	——
Advance appropriation	——	——	——	——	36,000
Total, Elk Hills school lands fund	36,000	36,000	——	——	36,000

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	FY 1999 Current Approp.	FY 1999 Comparable Approp.	FY 2000 Current Approp.	FY 2000 Comparable Approp.	FY 2001 Request to Congress
Energy Conservation					
Building technology, state and community sector	261,135	261,135	283,998	283,998	339,759
Federal energy management program	23,764	23,764	23,918	23,918	29,468
Industry sector	162,775	162,775	161,700	175,200	184,026
Transportation sector	198,665	198,665	232,760	232,760	250,870
Policy and management	38,039	38,039	42,866	42,866	46,377
Subtotal, Energy Conservation	684,378	684,378	745,242	758,742	850,500
(Subtotal, Energy Conservation - grants)	(166,000)	(166,000)	(168,500)	(168,500)	(191,000)
(Subtotal, Energy Conservation R&D)	(518,378)	(518,378)	(576,742)	(590,242)	(659,500)
Use of prior year balances and other adjustments	-65,383	-65,383	——	——	——
Total, Energy Conservation	618,995	618,995	745,242	758,742	850,500
Economic Regulation					
Office of hearings and appeals	1,785	1,785	1,992	1,992	2,000
Strategic Petroleum Reserve					
SPR - Facilities development					
SPR - Facilities development	160,120	160,120	158,396	158,396	158,000
Use of prior year balances and other adjustments	-195	-195	——	——	——
Total, SPR - Facilities development	159,925	159,925	158,396	158,396	158,000
SPR petroleum account					
Rescission	——	——	-12,000	-12,000	-7,000
Use of prior year balances and other adjustments	——	——	12,000	12,000	——
Total, Strategic Petroleum Reserve	159,925	159,925	158,396	158,396	151,000
Energy Information Administration					
National energy information system	70,185	70,185	72,368	72,368	75,000
Use of prior year balances and other adjustments	-315	-315	——	——	——
Total, Energy Information Administration	69,870	69,870	72,368	72,368	75,000
Clean Coal Technology					
Advance appropriation	——	——	10,000	10,000	171,000
Appropriation	-40,163	-40,163	-156,038	-156,038	-326,000
Total, Clean Coal Technology	-40,163	-40,163	-146,038	-146,038	-155,000